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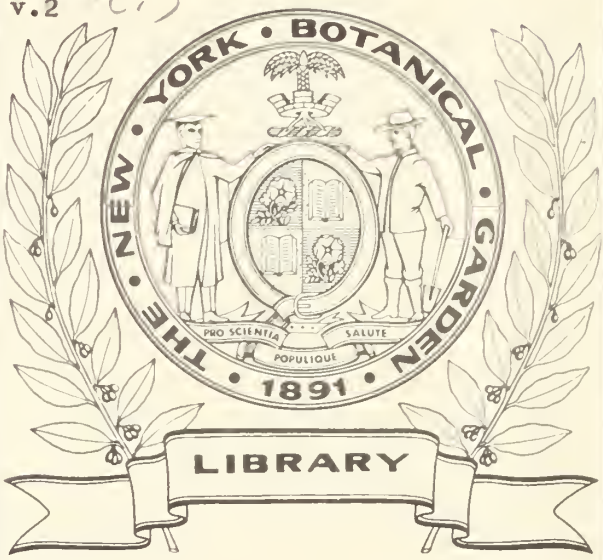

LUESTHER T. MERTZ LIBRARY
NEW YORK BOTANICAL GARDEN
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HANDBOOK OF BRITISH FUNGI.

HANDBOOK

OF

BRITISH FUNGI,

With full Descriptions of all the Species, and Illustrations of the Genera.

BY

M. C. COOKE, M.A.

N.Y. ACADEMY OF SCIENCES LIBRARY

LIBRARY NEW YORK BOTANICAL GARDEN

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1871.

G. P. BACON, PRINTER, LEWES.

NEW YORK
BOTANICAL
GARDEN

Order XV. PUCCINIÆI.

Parasitic on living plants; peridium none; spores mostly of two kinds (1) simple, (2) septate, the latter producing on germination secondary spores.—*Berk. Outl. p.* 328.

a. Spores stipitate.

Spores multiseptate.	
moniliform	*Xenodochus.*
cylindrical	*Phragmidium.*
biseptate	*Triphragmium.*
uniseptate	*Puccinia.*

b. Spores immersed in gelatine.

Stroma tremelloid and expanded	*Gymnosporangium.*
clavate or club-shaped	*Podisoma.*

Gen. **164.** **XENODOCHUS,** Schlecht.

Fig. 199.

Spores multiseptate, moniliform, breaking up into many distinct articulations.—*Berk. Outl. p.* 328. *(Fig.* 199.*)*

1455. Xenodochus carbonarius. *Schl.*
" Burnet chain brand."

Uredo-spores. Effused, or subrotund; spores sub-globose, orange-vermilion.—*Uredo miniata. Pers. Syn. p.* 216. *Lecythea miniata. Lev. Ann. Sc. Nat.* viii. *p.* 374.

Brand-spores. Scattered in small tufts, hypogenous; spores curved or straight, composed of from five to fifteen articulations; obtuse at one extremity, slightly attenuate at the other.—*Linn.* i. *p.* 237, *t.* 3, *f.* 3. *Cooke M.F. t.* iii. *f.* 29. *Ann. N.H. no.* 133. *Curr. Micr. Journ.* v. *t.* 8, *f.* 34. *Bisch. f.* 3866. *Berk. exs. no.* 328. *Fckl. exs. no.* 410.

On living burnet leaves. Rare.

(Fig. 199, *spore magnified.)*

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Gen. **165.** **PHRAGMIDIUM,** Link.

Fig. 200.

Spores cylindrical, multiseptate, scarcely moniliform, borne on a long pedunele.—*Link. Sp.* ii. *p.* 84. *Aregma. Berk. Outl. p.* 329. *Fr. S.M.* iii. *p.* 495. *Cooke M.F. p.* 195. *Eng. Fl.* v. *p.* 358. (*Fig.* 200.)

1456. Phragmidium mucronatum. *Link.* "Rose Brand."

Uredo-spores. Spots yellow, small, scattered; spores sub-oval, sometimes minutely pedicellate, orange.—*Lecythea rosæ. Lev. Cooke. M.F. t.* iii. *f.* 37. *Cooke exs. no.* 17. *Uredo rosæ. Eng. Fl.* v. *p.* 381.

Brand-spores. Hypogenous, scattered over the leaves in minute tufts; spores 5 to 7 septate, terminal joint mucronate; peduneles incrassated below, fusiform.—*Fckl. exs. no.* 313. *Fl. Dan. t.* 2279, *f.* 2. *Bisch. f.* 3860. *Purt. t.* 28. *Cooke L.F. no.* 3. *Aregma mucronatum. Berk. Outl. p.* 329. *Cooke M.F.* iii. *f.* 38. *Grev. t.* 15. *Eng. Fl.* v. *p.* 358. *Baxt. exs. no.* 37. *Cooke exs. no.* 17-18. *Nees. f.* 14. *Corda.* iv. *f.* 70.

On living rose leaves. Autumn. Common. [Maine, U.S.]

1457. Phragmidium acuminatum. *Fr.* "Burnet Brand."

Uredo-spores. Spots obliterated, rufous on the opposite side; sori subrotund, scattered, minute on the under surface; epidermis bursting; spores subglobose, often pedicellate, intense orange; barren spores pale, cylindrical, and slightly curved.—*Lecythea poterii. Lev. Cooke M. F. t.* 3, *f.* 31. *Cooke exs. no.* 19. *Uredo poterii. Eng. Fl.* v. *p.* 385.

Brand-spores. Hypogenous, scattered in minute tufts; spores multiseptate, terminal joint acuminate; peduncles equal. —*Aregma acuminatum. Fr. S.M.* iii. *p.* 497. *Cooke. M.F. t.* iii. *f.* 32. *Eng. Fl.* v. *p.* 358. *Cooke exs. no.* 19. *Fckl. exs. no.* 312. *Cooke L.F no.* 1. *Phragmidium intermedium. Lk. Sp.* ii. *p.* 84.

On living burnet leaves. (*Poterium sanguisorba.*) July. Common.

1458. Phragmidium bulbosum. *Schl.* "Bramble Brand."

Uredo-spores. Spots pale, brown or purple on the opposite side, sometimes depressed above; sori subrotund, aggregate; epidermis soon bursting; spores globose or subglobose, echinulate, bright ochraceous-yellow.—*Uredo ruborum. Eng. Fl.* v. *p.* 382 *(partly). Lecythea ruborum Lev. Cooke M.F. t.* 3, *f.* 40. *Cooke exs. no.* 20.

Brand-spores. Hypogenous, with a dull red stain on the upper surface; spores in large tufts, 4-septate, terminal joint apiculate; peduncles incrassated, and bulbous at the base.—*Schlecht. Fl. Ber. p.* 140. *Bisch. f.* 3861-3900. *Bon. t.* 2, *f.* 46. *Ann. Sc. Nat.* 1854, *t.* 9, *f.* 15-17. *Aregma bulbosum. Fr. S.M.* iii. *p.* 497. *Eng. Fl.* v. *p.* 358. *Cooke M.F. t.* 3, *f.* 41. *Cooke L.F. no.* 2. *Cooke exs. no.* 20. *Phragmidium incrassatum. Lk. Sp.* ii. *p.* 85. *Corda.* iv. *f.* 71. *Fckl. exs. no.* 314. *Puccinia rubi. Sow. t.* 400, *f.* 9. *Moug. exs. no.* 193. *Baxt. exs. no.* 33.

On living bramble leaves. Autumn. Common.

(*Fig* 200.)

1459. Phragmidium gracile. *Grev.* "Raspberry Brand."

Uredo-spores. Spots obliterated; sori minute, confluent, forming a small distinct ring; epidermis bursting; spores globose, and elongato-pyriform, yellow.—*Uredo gyrosa. Eng. Fl.* v. *p.* 384. *Reb. t.* 3, *f.* 15. *Lecythea gyrosa. Lev. Ann. Sc. Nat. Cooke M.F. t.* 8, *f.* 162-164. *Cooke. exs. no.* 64.

Brand-spores. Hypogenous, scattered, in small tufts; spores 7-9 septate, the terminal joint apiculate; peduncles slender.—*Aregma gracile. Eng. Fl.* v. *p.* 358. *Cooke M.F. t.* 3, *f.* 43. *Cooke exs. no.* 21. *Phragmidium effusum. Fckl. exs. no.* 316. *Puccinia gracilis. Grev. Fl. Ed. p.* 428. *Baxt. exs. no.* 39.

On raspberry leaves. Autumn.

1460. Phragmidium obtusum. *Link.* "Strawberry Brand."

Uredo-spores. Spots yellowish; sori subrotund, aggregate, often confluent; spores subglobose, orange.—*Lecythea potentillarum. Lev. Ann. Sc. Nat.* viii. *p.* 374. *Uredo potentillarum. Eng. Fl.* v. *p.* 382 (*partly*). *Sow. t.* 398, *f.* 2.

Brand-spores. Hypogenous, scattered in minute tufts; spores multiseptate; terminal joint obtuse; peduncles equal.—*Link. Sp.* ii. *p.* 84. *Aregma obtusatum. Fr. S.M.* iii. *p.* 497.

Cooke M.F. iii. *f.* 35. *Cooke exs. no.* 22. *Eng. Fl.* v. *p.* 359. *Fckl. exs. no.* 310. *Kl. exs. no.* 679. *Berk. exs. no.* 105. *Puccinia potentillæ. Grev. t.* 37. *Bull. t.* 504, *f.* 14. *Corda.* iv. *f.* 72.

On leaves of barren strawberry. *(Potentilla fragariastrum.)* Autumn.

Gen. **166.** **TRIPHRAGMIUM,** Link.

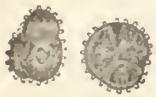


Fig. 201.

Spores trilocular; septa mostly vertical and horizontal.—*Berk. Outl. p.* 332. (*Fig.* 202.)

1461. Triphragmium ulmariæ. *Link.* "Meadow Sweet Brand."

Uredo-spores. Effused, broad, pulverulent, on leaves and petioles; spores subglobose, deep orange.—*Uromyces ulmariæ, Lev. Cooke M.F. t.* 7, *f.* 147, 148. *Cooke exs. no.* 75. *Uredo ulmariæ, Mart. Cæoma miniatum, Pers. Uredo effusa, Eng. Fl.* v. *p.* 381. *Grev. t.* 19. *Cooke L.F. no.* 25.

Brand-spores. Spots obliterated; sori at first subrotund, covered with the epidermis; at length, when the cuticle has vanished, effuse; spores brown, subturbinate, divided by a vertical dissepiment, shortly pedicellate.—*Link. Sp.* ii. *p.* 84. *Cooke M.F. t.* iii. *f.* 48. *Cooke exs. no.* 23. *Fckl. exs. no.* 317. *Cooke L.F. no.* 4. *Corda.* iv. *f.* 73. *Pay. f.* 250. *Kl. exs. no.* 271, ii. 366. *Berk. exs. no.* 343. *Puccinia ulmariæ, Eng. Fl.* v. *p.* 368. *Moug. exs. no.* 891.

On leaves of meadow-sweet (*Spiræa ulmaria*). Autumn. Common. (*Fig.* 201, *spores magnified.*)

Gen. **167.** **PUCCINIA,** Pers.

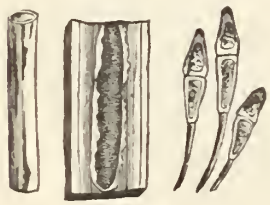


Fig. 202.

(1) Uredo spores subglobose, (2) brand spores uniseptate, supported on a distinct peduncle.—*Berk. Outl. p.* 329. (*Fig.* 203.)

It is probable that, when better known in their development and mutations, many forms now regarded as distinct species will have to be united.

1462. Puccinia graminis. *Pers.* "Corn mildew."

Uredo-spores. Spots yellow, heaps oval, scattered, generally on the upper surface; epidermis at length bursting longitudinally; spores subglobose, reddish-brown, easily dispersed.—*Trichobasis rubigo-vera, Cooke M.F. t. 7. figs.* 140, 149. *Cooke exs. no.* 24. *Uredo rubigo, Eng. Fl.* v. *p.* 375. *Uredo linearis, Eng. Fl.* v. *p.* 375.

Brand-spores. Spots pale, diffuse; sori linear, confluent, amphigenous; spores at length black, clavate, very slightly constricted.—*Cooke M.F. t.* 4, *f.* 57-59. *Pers. Disp. t.* 3, *f.* 3. *Moug. exs. no.* 675. *Cooke exs. no.* 24. *Corda.* iv. *f.* 27. *Fckl. exs. no.* 319. *Kl. exs. no.* 79. *Bisch. f.* 3877. *Bon. t.* i. *f.* 40. *Ann. Sc. Nat. (*1854), *t.* 9, *f.* 1-8. *Uredo frumenti. Sow. t.* 140.

On leaves and culms of corn and grass. Autumn. Very common. [United States.]

The variety on reeds is very similar, but quite distinct from *P. arundinacea* both in habit and fruit.

1463. Puccinia arundinacea. *Hedw.* "Reed Brand."

Uredo-spores. Sori elliptic or linear; spores oblong or subglobose, yellowish.—*Trichobasis linearis. Lév. Ann. Sc. Nat.?*

Brand-spores. Amphigenous; sori elongated, often confluent, emersed, convex, prominent; spores brown, attenuated in both directions, constricted at the joints, apiculate, on long pedicels.—*Hedw. in Duby. Bot.* ii. *p.* 889. *Corda.* iv. *f.* 30. *Cooke Seem. Journ.* iv. *p.* 97. *Cooke exs. no.* 25. *Fckl. exs. no.* 320.

On reed. Common.

Differing in habit from the var. *arundinis* of *P. graminis*, the sori are larger and less numerous, and the spores very distinct.

1464. Puccinia striola. *Link.* "Sedge Mildew."

Uredo-spores. Spots red; sori oval, minute, scattered, surrounded by the ruptured epidermis: spores subglobose, reddish, then brown.—*Trichobasis caricina. Cooke M.F. t.* 8, *f.* 170, 171. *Cooke exs. no.* 67. *Cooke L.F. no.* 33-35. *Uredo caricina, Eng. Fl.* v. *p.* 376. *Grev. t.* 12.

Brand-spores. Spots pallid: sori linear, crowded, distinct, subconvex; spores at length black, oblong and slightly constricted, or obovate, and not constricted.—*Link. Sp.* ii. *p.* 67. *Desm. exs. no.* 614. *Eng. Fl.* v. *p.* 363. *Cooke M. F. p.* 196. *Kl. exs. no.* 468.

On sedges, rushes, &c. Autumn. [United States.]

1465. Puccinia coronata. *Corda.* "Coronated Mildew."

Uredo-spores. Uncertain.

Brand-spores. Spots pallid; sori linear, short, crowded, not confluent, surrounded by the ruptured epidermis; spores shortly pedicellate, pallid; the apex surrounded by obtuse radiating teeth.—*Corda.* i. *f.* 96. *Cooke M.F. t.* 4, *f.* 60, 69. *Ann. N.H. no.* 473. *Sturm. t.* 3. *Cast.Cat. p.* 202, *t.* 2. *Cooke exs. no.* 26. *Fckl. exs no.* 322. *Kl. exs.* ii. *no.* 681. *Ann. Sc. Nat.* (1847), *t.* 7, *f.* 28.

On various grasses.

A very neat species, on leaves of the smaller grasses. The coronated spores are very characteristic.

1466. Puccinia truncata. *B. & Br.* "Iris Brand."

Uredo-spores. Spots yellow; sori small, pale red brown, oblong, and linear, scattered or aggregate, bullate; spores globose, or broadly elliptic, pale brown.—*Uromyces iridis. Lev. Cooke M.F. p.* 376. *Cooke L.F. no.* 28. *Cooke exs. no.* 77. *Uredo iridis. Eng. Fl.* v. *p.* 376. *Berk. exs.no.* 59.

Brand-spores. Spots obliterated; sori oblong, brown, surrounded by the scarious epidermis; spores obovate-oblong, even, attenuated below, upper cell abruptly truncate.—*B. & Br. Ann. N.H. no.* 754. *Cooke M.F. p.* 196.

On *Iris fœtidissima.* Autumn.

We have found the Brand-spores mixed with the Uredo-spores in the same pustule.

1467. Puccinia asparagi. *D.C.* "Asparagus Brand."

Uredo-spores.

Uredo Asparagi. Lasch. Kl. exs. no. 1180. *Bot. Zeit.* 1848, *p.* 509.

Brand-spores. Spots none; sori reddish-brown, generally on the stems, scattered and crowded, surrounded by the ruptured epidermis; spores oblong, obtuse, constricted; peduncle white, long, thread-like.—*D.C. Fl. Fr.* ii. *p.* 595. *Eng. Fl.* v. *p.* 363. *Cooke M.F. p.* 196. *Moug. exs. no.* 392. *Cooke exs. no.* 111. *Corda. Ic.* iv. *f.* 32. *Fckl. exs. no.* 378. *Kl. exs. no.* 1181, ii. *no.* 680.

On dead stems of asparagus. Autumn.

1468. Puccinia polygonorum. *Link.* "Polygonum Brand."

Uredo-spores. Spots red-yellow, widely effused; sori subrotund, scattered, sometimes forming a ring, epidermis at length bursting; spores somewhat obovate, brown.—*Trichobasis polygonorum. Lev. Ann. Sc. Nat. Cooke M.F. p.* 210. *Cooke exs. no.* 27. *Berk. exs. no.* 231. *Cooke L.F. no.* 42. *Uredo polygonorum. Grev. t.* 80. *Eng. Fl.* v. *p.* 377.

Brand-spores. Spots yellowish; sori minute, crowded into orbicular patches; spores brown-black, obovate-oblong, frequently constricted, with the upper joint globose.—*Link Sp.* ii. *p.* 69. *Eng. Fl.* v. *p.* 363. *Cooke M.F. p.* 197. *Cooke exs. no.* 27. *Fckl. exs. no.* 331. *Corda.* iv. *f.* 41-62, ii. *f.* 20. *Kl. exs. no.* 80, 789, 886. *Berk. exs. no.* 216. *Cooke L.F. no.* 5.

On leaves of various species of *Polygonum.* Common.
[United States.]

1469. Puccinia vaginalium. *Link.* "Knot-grass Brand."

Uredo-spores. Uncertain.—*Uromyces Polygoni. Fckl?*

Brand-spores. Spots none; sori hypogenous, subrotund or oblong, at first surrounded by the ruptured epidermis; spores brown, obtusely ovate; pedicels long, filiform.—*Link. Sp.* ii. *p.* 69. *Eng. Fl.* v. *p.* 363. *Cooke M.F. p.* 197.

On leaves and stems of knot-grass, *(Polygonum aviculare.)* Autumn.

1470. Puccinia thesii. *Chail.* "Bastard Toad-flax Brand."

Uredo-spores?

Brand-spores. Cauline and amphigenous; sori blackish-brown, small, roundish, or oblong, convex, scattered, or aggregate, surrounded by the ruptured epidermis; spores ovate, obtuse, scarcely constricted; pedicels elongated.—*Cooke M.F. p.* 197.

On *Thesium humifusum.* Oct.

1471. Puccinia primulæ. *Grev.* "Primrose Brand."

Uredo-spores. Spots yellowish; sori subrotund or oval, aggregate, epidermis at length bursting; spores ovoid, brown. —*Uromyces primulæ Lev. Cooke M.F. p.* 211. *Uredo primulæ. Eng. Fl.* v. *p.* 377.

Brand-spores. Hypogenous, deep brown, solitary, scattered, or concentric and subconfluent; spores obovate-oblong, slightly constricted.—*Grev. Fl. Ed. p.* 432. *Eng. Fl.* v. *p.* 364. *Cooke M.F. p.* 197. *Cooke exs. no.* 28. *Berk. exs. no.* 350. *Cooke L.F. no.* 6.

On leaves of primroses. June—Sept.

1472. Puccinia veronicarum. *D.C.* "Veronica Brand."

Uredo-spores?

Brand-spores. Spots yellowish; sori subglobose, aggregate, or circinating, central one large; spores brown, obovate-oblong, more or less constricted.—*D.C. Fl. Fr.* ii. *p.* 594. *Eng. Fl.* v. *p.* 364. *Cooke M.F. p.* 197. *Cooke exs. no.* 112. *Fckl. exs. no.* 1547. *Kl. exs. no.* 1292, ii. *no.* 682. *Cooke L.F. no.* 7.

On under surface of leaves of *Veronica*.

1473. Puccinia glechomatis. *D.C.* "Ground-ivy Brand."

Uredo-spores?

Brand-spores. Spots brownish; sori subrotund, scattered, hypogenous; spots brown, rather short, subelliptic, scarcely at all constricted.—*D.C. Fl. Fr.* vi. *p.* 56. *Eng. Fl.* v. *p.* 364. *Cooke M.F. t.* 4, *f.* 73-74. *Nees. f.* 12. *Cooke exs. no.* 29. *Corda.* iv. *f.* 35. *Fckl. exs. no.* 329. *Kl. exs. no.* 272. *Cooke L.F. no.* 8.

On leaves of ground-ivy, (*Glechoma hederacea.*) Sept. and Oct.

1474. Puccinia menthæ. *Pers.* "Mint Brand."

Uredo-spores. Spots yellowish and brown; sori subrotund, scattered, subaggregate on the under surface; epidermis ruptured; spores subglobose, brown.—*Trichobasis labiatarum. Lev. Ann. Sc. Nat. Cooke M.F. p.* 209. *Cooke L.F. no.* 37. *Cooke exs. no.* 30. *Berk. exs. no.* 232-233. *Uredo labiatarum. D.C. Fl. Fr.* vi. *p.* 72. *Eng. Fl.* v. *p.* 378. *Sow. t.* 398, *f.* 3.

Brand-spores. Spots obliterated; sori varying in size, hypogenous, subrotund, scattered; spores at length black, subglobose, or angular; peduncles short.—*Pers. Syn. p.* 227. *Eng. Fl.* v. *p.* 364. *Cooke M.F. t.* 4, *f.* 69-70. *Cooke exs. no.* 30. *Corda.* iv. *f.* 37. *Fckl. exs. no.* 335-338. *Kl. exs.* ii. *no.* 353. *Berk. exs. no.* 217.

On leaves of mints, &c. Autumn. Common.

1475. Puccinia scorodoniæ. *Link.* "Wood-sage Brand."

Uredo-spores ?

Brand-spores. Spots obliterated; sori small, confluent in subrotund patches, hypogenous; spores cinnamon; peduncles very long.—*Link. Sp.* ii. *p.* 72. *Eng. Fl.* v. *p.* 364. *Cooke M.F. p.* 197. *Cooke exs. no.* 31. *Cooke L.F. no.* 9. *Corda.* iv. *f.* 33. *Fckl. exs. no.* 333. *Kl. exs. no.* 1487. ii. 356.

On leaves of *Teucrium scorodonia.* Autumn.

1476. Puccinia scrophulariæ. *Lib.* 'Fig-wort Brand."

Uredo-spores ?

Brand-spores. Spots pallid; sori subrotund, oblong, or linear and confluent, surrounded by the ruptured epidermis; spores very much crowded, subglobose or oval, brownish, plicate, but not truly septate; pedicels elongated.—*Lib. exs. no.* 193. *Ann. N.H. no.* 471. *Cooke M.F. p.* 197.

On leaves of *Scrophularia aquatica.* Rare.

1477. Puccinia betonicæ. *D.C.* "Betony Brand."

Uredo-spores ?

Brand-spores. Spots obliterated; sori hypogenous, subrotund, aggregate, surrounded by the ruptured epidermis; spores very pale-brown, short, obovate, elliptic; peduncles short.—*D.C. Fl. Fr.* vi. *p.* 57. *Eng. Fl.* v, *p.* 364. *Cooke M.F. p.* 198. *Cooke exs. no.* 108. *Corda.* iv. *f.* 58. *Kl. exs. no.* 1590, ii. 355. *Berk. exs. no.* 218.

On leaves of *Stachys betonica.* June.

Usually completely covering the under surface of the leaves.

1478. Puccinia vincæ. *Berk.* "Periwinkle Brand."

Uredo-spores. Spots yellowish; sori small, subrotund, and oval, on the under surface, surrounded by the ruptured epidermis; spores oval, rather ovoid, brown.—*Trichobasis vincæ. Cooke M.F. t.* 6, *f.* 130-131. *Cooke exs. no.* 32. *Berk. exs. no.* 234. *Uredo vincæ. D.C. Fl. Fr.* vi. *p.* 70. *Eng. Fl.* v. *p.* 378.

Brand-spores. Spots yellowish; sori hypogenous, scattered, subrotund, surrounded by the ruptured epidermis; spores brown, oblong, slightly constricted, lower cell rather attenuated;

peduncle very short.—*Berk. Eng. Fl.* v. *p.* 364. *Cooke M.F. t.* 6, *f.* 132. *Cooke exs. no.* 32. *Kl. exs.* 1091, ii. 107. *Cooke L.F. no.* 10.

On leaves of *Vinca major*. Autumn.

The Uredo-spores and Brand-spores are usually more or less mixed together. Many of the younger leaves are distorted by the parasite.

1479. Puccinia campanulæ. *Carm.* "Campanula Brand."

Uredo-spores ?

Brand-spores. Spots apparently none; sori large, irregular, crowded, for a long time covered with the epidermis, at length surrounded by it; spores oblong-ovate, or slightly constricted; peduncles very short.—*Berk. Eng. Fl.* v. *p.* 365. *Cooke M.F. p.* 198. *B. & Br. Ann. N.H. no.* 472. *Cooke exs. no.* 109. *Fckl. exs. no.* 375.

On *Campanulæ, (Jasione montana, &c.)*

1480. Puccinia clandestina. *Carm.* "Scabious Brand."

Uredo-spores ?

Brand-spores. Spots yellowish; sori very minute, distinct, but collected together in great numbers, dark-brown; epidermis evanescent; spores oblong, very slightly constricted, pedunculate.—*Berk. Eng. Fl.* v. *p.* 365. *Cooke M.F. p.* 198.

On *Scabiosa succisa*. Rare.

1481. Puccinia sparsa. *Cooke.* "Goat's beard Brand."

Uredo-spores ?

Brand-spores. Spots obsolete; sori on both surfaces, few, scattered, bullate, for a long time covered with the epidermis, oblong, unequal; spores oval, slightly constricted, dark-brown; epispore minutely tuberculate; peduncles very short, caducous. —*Cooke. exs. no.* 330.

On *Tragopogon pratensis*. Aug. New Cross.

Very distinct from *P. compositarum*, in the larger, sooty sori, which are a long time covered, and very few in number, sometimes only three or four, and in the tuberculate spores. It has only been found amongst or near the exolete pustules of *Æcidium Tragopogonis*. This is clearly not the *Puccinia Tragopogonis* of Corda's Icones.

1482. Puccinia compositarum. *Sch.* "Composite Brand."

Uredo-spores. On both sides of the leaf, dark, fuscous, minute, round, scattered, globose, rarely minutely pedicellate.—

Trichobasis cichoracearum. Lev. Ann. Sc. Nat. Cooke M.F. p. 208. *Cooke exs. no.* 68. *Cooke L.F. no.* 36.

Brand-spores. Spots obliterated or whitish; sori small, subrotund, generally hypogenous, encircled with the ruptured epidermis; spores brown, oval, scarcely constricted.—*Lk. Sp.* ii. *p.* 75. *Berk. Eng. Fl.* v. *p.* 365. *Cooke M.F. t.* 4, *f.* 67-68. *Cooke exs. no.* 33-34. *Berk. exs. no.* 219. *Corda.* iv. *f.* 45. *Fckl. exs. no.* 344. *Ann. Sc. Nat.* (1847) *t.* 7, *f.* 22-27. *Kl. exs. no.* 274, ii. 194. *Cooke L.F. no.* 11-12.

On leaves of *Centaureæ*, &c. Autumn. Common.
[United States.]

1483. Puccinia discoidearum. *Link.* "Mug-wort Brand."

Uredo-spores. Spots obliterated, brownish on the opposite side; sori subglobose and oval, minute, scattered, on both surfaces; epidermis soon ruptured; spores subglobose, brownish. *Trichobasis artemisiæ. Lev. Uredo artemisiæ. Ann. N.H. no.* 136. *Berk. exs. no.* 235. *Berk. Outl. p.* 332. *Berk. exs. no.* 235. *Cooke M.F. p.* 209. *Cooke exs. no.* 115.

Brand-spores. Spots obliterated; sori subrotund, minute, surrounded by the remains of the ruptured epidermis; sporidia brown, oblong or ovoid, somewhat rhomboidal, with both cells attenuated and triangular; peduncles elongated.—*Link. Sp. Pl.* ii. *p.* 73. *Kl. exs. no.* 190, ii. 685. *Corda.* iv. *t.* 4, *f.* 43. *Cooke exs. no.* 35. *P. tanaceti. D.C. Fl. Fr.* ii. *p.* 222. *Fckl. exs. no.* 341. *P. absinthi. D.C. Fl. Fr.* vi. *p.* 58. *P. artemisiarum. Kze. exs. no.* 93. *P. artemisiæ. Fckl. exs. no.* 350.

On *Artemisia maritima* and *Tanacetum vulgare*.

1484. Puccinia syngenesiarum. *Link.* "Thistle Brand."

Uredo-spores. *Uredo cirsii. Lasch.*

Brand-spores. Spots obliterated; sori minute, collected in oval blackish-brown, raised spots, covered with the epidermis; spores brown; peduncles very short.—*Lk. Sp.* ii. *p.* 74. *Berk. Eng. Fl.* v. *p.* 365. *Cooke M.F. t.* 4, *f.* 63, 64. *Cooke. exs. no.* 35. *Corda.* iv. *f.* 53. *Cooke L.F. no.* 13. *P. cirsii, Fckl. exs. no.* 340.

On leaves of Thistles. Autumn. Common.

Distinguished from *P. compositarum* by the sori being collected into orbicular heaps, as well as other features.

1485. Puccinia glomerata. *Grev.* "Ragwort Brand."

Uredo-spores. Spots obliterated; sori solitary or regularly crowded, subrotund and oval, on the under surface, surrounded by the ruptured epidermis; spores subglobose, orange.—*Trichobasis senecionis, Berk. Outl. p.* 332. *Cooke M.F. t.* 7, *f.* 145, 146. *Cooke exs. no.* 66. *Uredo senecionis. Eng. Fl.* v. *p.* 379. *Desm. exs. no.* 673.

Brand-spores. Spots pale, sori roundish, depressed, often confluent; spores oblong, very variable; peduncles short.—*Berk. Eng. Fl. v. p.* 365. *Cooke M.F. p.* 198. *Cooke exs. no.* 37. *Berk. exs. no.* 220.

On leaves of Ragwort, *(Senecio jacobæa.)*

Somewhat similar in habit to *P. syngenesiarum*, but more pulverulent.

1486. Puccinia virgaureæ. *Lib.* "Golden-rod Brand."

Uredo-spores?

Brand-spores. Spots orbicular, pallid, then yellowish. Sori blackish-brown, minute, punctiform, shining, clustered, nearly stellate, convex; sporidia oblong, subconstricted, yellowish-brown above, attenuated and yellowish-white below; peduncles short. —*Lib. exs. no.* 393. *Corda.* iv. *t.* [illegible] *f.* 42. *Cooke Seem. Journ. Rabh. Fl. p.* 24. *Cooke exs. no.* 45. *Dothidea solidaginis*, β. *Fr. S.M.* ii. *p.* 362. *Xyloma, D.C. Mem. du Mus. t.* 3, *f.* 12. *Asteroma atratum, Chev. Fl. Par. p.* 449. *Fckl. exs. no.* 343. *Kl. exs.* ii. *no.* 1989.

On leaves of *Solidago virgaurea.* August.

Very characteristic in the stellate, or radiate and dendritic arrangement of the minute sori.

1487. Puccina variabilis. *Grev.* "Variable Brand."

Uredo-spores?

Brand-spores. Sori amphigenous, minute, roundish, surrounded by the ruptured epidermis, nearly black; spores variable, obtuse, cells often subdivided; peduncle very short.—*Berk. Eng. Fl.* v. *p.* 365. *Grev. t.* 75. *Cooke M.F. t.* 4, *f.* 82, 83. *Corda* iv. *f.* 64. *Anl. B. f.* 4, 5.

On leaves of Dandelion. Summer and autumn.

1488. Puccinia valantiæ. *Pers.* "Crosswort Brand."

Uredo-spores? *Trichobasis galii. Lev. in part?*

Brand-spores. Spots obliterated; sori small, subrotund,

scattered or crowded; spores pale-brown, obovate, attenuated below, the upper segment globular, easily separating.—*Pers. Syn. p.* 227. *Eng. Fl.* v. *p.* 365. *Cooke Eng. Fl.* v. *p.* 198. *Cooke exs. no.* 38. *Kl. exs. no.* 697. *Cooke L.F. no.* 14.

On *Galium cruciatum.* Autumn.

1489. Puccinia galiorum. *Link.* "Bedstraw Brand."

Uredo-spores. Spots yellowish; sori subrotund, aggregate, closed; spores globose, reddish.—*Trichobasis galii, Berk. Outl. p.* 332. *Cooke M.F. p.* 209. *Cooke exs. no.* 72.

Brand-spores. Spots obliterated; sori hypogenous, partly covered with and surrounded by the ruptured epidermis, scattered; spores brown.—*Link. Sp.* ii. *p.* 76. *Eng. Fl.* v. *p.* 366. *Cooke M.F. t.* 8, *f.* 172, 173. *Fckl. exs. no.* 351. *Kl. exs.* ii. *no.* 792. *Ann. N.H. no.* 253.

On leaves of several species of *Galium*, and *Asperula odorata.* [United States.]

1490. Puccinia difformis. *Kunze.* "Goosegrass Brand."

Uredo-spores?

Brand-spores. Spots yellowish; sori variable, compact, often in rings; epidermis bullate; spores obovate, obtuse, on short pedicels, brown.—*Cooke M. F. Ed.* ii. *p.* 223. *Cooke exs. no.* 113.

On *Galium aparine.* Autumn.

Usually occurring on or near spots previously occupied by *Æcidium galii.* Very distinct from either *Puccinia galiorum* or *P. valantiæ*, the sori are firm and compact like little spots of pitch.

1491. Puccinia umbelliferarum. *D.C.* "Pignut Brand."

Uredo-spores. Spots yellowish; sori subrotund and ovate, scattered, on the under surface, surrounded by the ruptured epidermis; spores ovate, oval, and oblong in the same heap, brown.—*Trichobasis umbellatarum, Lev. Ann. Sc. Nat. Cooke M.F. p.* 209. *Cooke exs. no.* 42, *A. Cooke L.F. no.* 38. *Uredo umbellatarum, Johnst. Fl. Berw.* ii. *p.* 202. *Berk. Eng. Fl.* v. *p.* 380.

Brand-spores. Spots obliterated; sori small and scattered, subrotund, surrounded by the remains of the ruptured epidermis; spores brown, broadly elliptic, much constricted; pedunele short.—*D.C. Fl. Fr.* vi. *p.* 58. *Eng. Fl.* v. *p.* 366. *Cooke. M.F. t.* 4, *f.* 71. 72. *Cooke exs. no.* 39, 40. *Fckl. exs. nos.* 354-359. *P.*

tumida, Grev. Fl. Ed. p. 430. *Eng. Fl.* v. *p.* 366. *Corda.* iv. *f.* 49. *Kl. exs. no.* 1185, ii. 348, 349. *Berk. exs. no.* 221. *Cooke L. F. no.* 15.

On various *Umbelliferæ*. Common.

1492. Puccinia heraclei. *Grev.* "Hog-weed Brand."

Uredo-spores. On the under surface, scattered, sometimes subconfluent, roundish, light brown; spores obovate, with a very short peduncle.—*Trichobasis heraclei, Lev. Berk. Eng. Fl.* v. *p.* 380. *Cooke M. F. p.* 209.

Brand-spores. Hypophyllous, blackish, surrounded by the ferruginous epidermis; spores crowded, very obtuse, subovate, slightly constricted; cells nearly equal; stem very short.—*Pucc. heraclei, Grev. t.* 42.

On *Heracleum spondylium.*

Dr. Greville says "it differs in being much larger, more depressed than *P. Umbelliferarum*, and surrounded by the epidermis, which is very fugacious in the other."

1493. Puccinia apii. *Corda.* "Celery Brand."

Uredo-spores. Spores pale cinnamon, oval, obtuse, or irregular.—*Uredo apii, Wall.* ii. *p.* 203.

Brand-spores. Sori large, confluent, red-brown, powdery; spores oblong, constricted, brown; epispore smooth, thick; pedicels short, attenuated.—*Corda.* vi. *f.* 11. *Cooke M. F. ed.* ii. *p.* 224. *Cooke exs. no.* 40a. *Fckl. exs. no.* 362. *Ann. N. H. no.* 1147. *Cooke L. F. no.* 16.

On leaves of celery. Autumn.

1494. Puccinia ægopodii. *Link.* "Gout-weed Brand."

Uredo-spores?

Brand-spores. Spots brown; sori minute, subrotund and elongated, surrounded by the ruptured epidermis, often circinating, and forming roundish patches; spores brown; peduncles very short.—*Lk. Sp.* ii. *p.* 77. *Eng. Fl.* v. *p.* 366. *Cooke M. F. p.* 199. *Corda.* iv. *f.* 48. *Fckl. exs. no.* 353. *Kl. exs. no.* 273, ii. 687.

On *Ægopodium podagraria.* Rare.

1495. Puccinia saniculæ. *Grev.* "Sanicle Brand."

Uredo-spores. Spores globose.—*Eng. Fl.* v. *p.* 380; sub *Uredo umbellatarum.*

Brand-spores. Orbicular, variable in size, blackish-brown, scattered, rather confluent; spores very obtuse; peduncles somewhat elongated.—*Grev. Fl. Ed. p.* 431. *Eng. Fl.* v. *p.* 366. *Cooke M.F. p.* 199. *Cooke exs. no.* 41. *Kl. exs.* ii. 350. *Cooke L.F. no.* 17. *Berk. exs. no.* 315.

On leaves of *Sanicula europæa*. Summer and autumn.

"There is a disposition in the smaller punctiform pustules to form a circle round the larger ones."—*Grev.*

1496. Puccinia bullaria. *Link.* "Hemlock Brand."

Uredo-spores?

Brand-spores. Spots obliterated; sori subrotund or oblong, covered with the epidermis; spores brown; peduncle short, nearly obsolete.—*Lk. Sp.* ii. *p.* 78. *Berk. Eng. Fl.* v. *p.* 366. *Cooke M.F. p.* 199. *Cooke exs. no.* 42 *b*. *Pers. Obs.* i. *t.* 2, *f.* 5. *Berk. exs. no.* 57.

On dry stems of *Conium maculatum* and other *Umbelliferæ*.
[United States.]

1497. Puccinia smyrnii. *Corda.* "Alexander's Brand."

Uredo-spores?

Brand-spores. Spots obliterated; sori hypogenous, large, solitary, scattered, brown; spores ovoid, obtuse, verrucose, slightly constricted, minutely pedicellate.—*Corda.* i. *f.* 67. *B. & Br. Ann. N.H. no.* 469. *Cooke M.F. t.* 3, *f.* 55-56. *Cooke exs. no.* 320. *Corda Icon.* iv. *f.* 67.

On leaves of *Smyrnium olusatrum*.

Remarkable for its coarsely tuberculated spores. One of the finest of the British species, but not very common.

1498. Puccinia anemones. *Pers.* "Anemone Brand."

Uredo-spores?

Brand-spores. Spots obliterated; sori subrotund, surrounded by the ruptured epidermis, scattered, aggregate, and confluent; spores brown, very much constricted, consisting of two nearly globose portions, echinulate; peduncles very short.—*Pers. Syn. p.* 226. *Berk. Eng. Fl.* v. *p.* 367. *Cooke M.F. t.* 4, *f.* 64-65. *Cooke exs. no.* 43. *Baxt. exs. no.* 82. *Moug. exs. no.* 191. *Corda.* iv. *f.* 69. *Fckl. exs. no.* 372. *Kl. exs. no.* 467, ii. 346. *Berk. exs. no.* 222. *Cooke L.F. no.* 18. *Conjurer of Chalgrave's Fern. fide Ray.*

On leaves of *Anemone nemorosa*. April. May. Common. [United States].

One of the commonest species. The echinulate spores are very pretty.

1499. Puccinia calthæ. *Link.* "Marsh Marigold Brand."

Uredo-spores?

Brand-spores. Spots brownish; sori small, subrotund, convex, surrounded by the ruptured epidermis, scattered; spores obovate, attenuated below, slightly constricted; peduncle very short.—*Link. Sp.* ii. *p.* 80. *Berk. Eng. Fl.* v. *p.* 367. *Cooke M.F. p.* 199. *Cooke exs. no.* 114. *Corda.* iv. *f.* 40. *Fckl. exs. no.* 370. *Kl. exs. no.* 465, ii. 344.

On leaves of *Caltha palustris*. Spring.

1500. Puccinia asari. *Kunze.* "Asarabacca Brand."

Uredo-spores?

Brand-spores. Spots obliterated; sori small, subglobose, crowded, or circinating, ultimately confluent, surrounded by the ruptured epidermis, usually forming a large, roundish, convex, pulverulent mass; spores brown, elliptic, constricted.—*Cooke M. F. ed.* ii. *p.* 224. *Cooke exs. no.* 110. *Fckl. exs. no.* 376.

On leaves of *Asarum europæum*. July. N. Wales.

The large, round, pulverulent masses of confluent sori make this species very conspicuous.

1501. Puccinia noli-tangeris. *Corda.* "Balsam Brand."

Uredo-spores. Spores subglobose, brown, pulverulent, with a short evanescent peduncle.—*Uredo impatientis. Rabh. D.C. Fl. no.* 35. *Rabh. exs. no.* 288.

Brand-spores. Spots irregular, confluent, brownish; sori gregarious, reddish-brown; spores oblong, obtuse or attenuated, distinctly apiculate, brown; peduncles rudimentary.—*Corda.* iv. *f.* 57. *B. & Br. Ann. N.H. no.* 1044. *Cooke M.F. p.* 199. *Cooke exs. no.* 44. *Fckl. exs. no.* 1672. *Kl. exs. no.* 1182, ii. 340. *Cooke L.F. no.* 19.

On leaves of *Impatiens fulva* and *noli-tangere*.

1502. Puccinia violarum. *Link.* "Violet Brand."

Uredo-spores. Spots yellowish; sori subrotund, scattered, generally on the under surface; epidermis ruptured, persistent; spores subglobose, brown.—*Trichobasis violarum. Lev. Ann. Sc.*

Nat. Cooke M.F. p. 210. *Cooke exs. no.* 46. *Cooke L.F. no.* 43. *Uredo violarum. D.C. Fl. Fr.* vi. *p.* 73. *Eng. Fl.* v. *p.* 380. *Sow. t.* 440.

Brand-spores. Spots yellowish; sori hypogenous, small, crowded, covered with the epidermis, then surrounded by it; spores brown, elliptic, or broadly elliptic, slightly constricted.—*Link. Sp.* ii. *p.* 80. *Eng. Fl.* v. *p.* 367. *Cooke M.F. p.* 200. *Cooke exs. no.* 46. *Fckl. exs. no.* 374. *Kl. exs. no.* 473, ii. 196. *Berk. exs. no.* 223.

On leaves of violets. Autumn. Common.

1503. Puccinia lychnidearum. *Link.* "Lychnis Brand."

Uredo-spores. Spots pallid yellowish; sori subrotund plane, scattered on the under surface, cinnamon, at length brownish; epidermis ruptured; spores globoso-ovoid, sessile, or shortly pedicellate.—*Trichobasis lychnidearum. Lev. Ann. Sc. Nat. Cooke M.F. p.* 209.

Brand-spores. Spots yellowish; sori subrotund or oblong, unequal, scatttered, rarely confluent; spores white, at length brown, elongated, oblong, slightly constricted.—*Link. Sp.* ii. *p.* 80. *Berk. Eng. Fl.* v. *p.* 367. *Cooke M.F. p.* 200. *Cooke exs. no.* 47. *Corda.* iv. *f.* 38. *Fckl. exs. no.* 366-369. *Kl. exs. no.* 1147, ii. 683. *Ung. exs. t.* 6, *f.* 33. *Berk. exs. no.* 224. *P. mœhringiæ. Fckl. exs. no.* 1934. *Cooke exs. no.* 297. *Cooke L.F. no.* 21.

On leaves and stems of *Lychnis*, *Sagina*, *Arenaria*, &c.

I cannot think that *Puccinia mœhringiæ*, on the leaves of *Arenaria trinervis* is entitled to be regarded as a distinct species.

1504. Puccinia umbilici. *Guep.* "Penny-wort Brand."

Uredo-spores?

Brand-spores. Seated on pallid spots; sori round, convex, compact, at length confluent in large orbicular patches; spores subglobose, not constricted, shortly pedicellate.—*Guep. Bot. Gall. p.* 890. *B. & Br. Ann. N.H. no.* 470. *Berk. exs. no.* 329. *Cooke M.F. t.* 4, *f.* 80-81. *Cooke exs. no.* 48. *Cooke L.F. no.* 20.

On *Cotyledon umbilicus*.

1505. Puccinia rhodiolæ. *B. & Br.* "Stone-crop Brand."

Uredo-spores?

Brand-spores. Spots orbicular, brown; sori minute, crowded; spores shortly pedicellate; articulations depressed,

sometimes spuriously subdivided.—*Berk. in Gard. Fl. Forf. p.* 296. *B. & Br. Ann. N.H. no.* 468. *Cooke M.F. p.* 200.

On leaves of *Sedum rhodiola*. Summer. Rare.

The articulations are sometimes spuriously subdivided, showing a tendency to the structure of *Triphragmium*.—*B. & Br.*

1506. Puccinia saxifragarum. *Schl.* "Moschatel Brand."

Uredo-spores?

Brand-spores. Spots obliterated; sori subrotund, scattered, crowded and confluent, when young surrounded by the epidermis; spores red-brown, rather short, oblong, slightly constricted.—*Link. Sp.* ii. *p.* 80. *Berk. Eng. Fl.* v. *p.* 367. *Cooke M.F. p.* 200. *Corda.* iv. *f.* 59. *Fckl. exs. no.* 371.

On both surfaces of leaves of *Adoxa moschatellina*, &c. Summer. [United States.]

1507. Puccinia chrysosplenii. *Grev.* "Saxifrage Brand."

Uredo-spores?

Brand-spores. Sori of various sizes, few together and confluent, pale brown; spores long, somewhat waved, much attenuated at either extremity; pedunele elongated.—*Grev. Eng. Fl.* v. *p.* 367. *Cooke M.F. p.* 200.

On the under surface of the leaves of *Chrysosplenium oppositifolium*. Very rare.

1508. Puccinia epilobii. *D.C.* "Willow Herb Brand."

Uredo-spores. Spots yellowish; sori subrotund, scattered, surrounded by the ruptured epidermis, often on the under surface; spores subglobose, brown.—*Trichobasis epilobii. Berk. Outl. p.* 333. *Cooke M.F. p.* 210. *Uredo epilobii. Eng. Fl.* v. *p.* 381.

Brand-spores. Spots pale; sori hypogenous, subrotund, crowded; epidermis evanescent; spores effuse, cinnamon, broadly elliptic, strongly constricted; pedunеles very short.—*D.C. Fl. Fr.* vi. *p.* 61. *Berk. Eng. Fl.* v. *p.* 368. *Cooke M.F. p.* 200. *Corda* iv. *f.* 51. *Fckl. exs. no.* 339. *Kl. exs. no.* 1184. *Berk. exs. no.* 349.

On *Epilobium palustre*.

1509. Puccinia pulverulenta. *Grev.* "Great willow-herb Brand."

Uredo-spores. Sori scattered or subrotund; spores subglobose, brown.—*Trichobasis epilobii. Berk. Outl. p.* 333 (*partly*). *Cooke M.F. p.* 210 *(in part).*

Brand-spores. Sori hypogenous, dark-brown, scattered or subconfluent, open, concentric; spores minute, obovate, slightly constricted, lower cell rather attenuated; pedunele not very short.—*Grev. Fl. Ed. p.* 432. *Eng. Fl.* v. *p.* 368. *Cooke M.F. t.* 4, *f.* 78-79. *Cooke exs. no.* 49. *Berk. exs. no.* 108.

On leaves of *Epilobium montanum* and *E. hirsutum.* Aug. Sept. Common.

"Spores scarcely 'obtusely oval,' but obovate, slightly constricted, the lower cell attenuated slightly; stem not very short. Certainly nearly allied to *P. epilobii,* but distinct in the form of the spores."—*Eng. Fl.*

1510. Puccinia circeæ. *Pers.* "Night-shade Brand."

Uredo-spores. Sori minute, crowded, subrotund, slightly confluent on the under surface; spores irregular, ovate, small, ochraceous.—*Uredo circææ, A. & S. Cooke M.F. t.* 7, *f.* 135, 136. *Cooke exs. no.* 62. *Berk. exs. no.* 342. *Cooke L.F. no.* 31.

Brand-spores. Spots obliterated; sori minute, semi-globose, crowded into subrotund patches, occasionally confluent, generally covered with the epidermis; spores brown, oblong, often acute, sometimes obtuse; pedunele long, thick.—*Pers. Syn. p.* 228. *Eng. Fl.* v. *p.* 368. *Cooke M.F. p.* 200. *Cooke exs. no.* 50. *Moug. exs. no.* 192. *Desm. exs. no.* 615. *Corda.* iv. *f.* 34. *Fckl. exs. no.* 328-1548. *Berk. exs. no.* 319. *Kl. exs. no.* 464. ii. 357.

On the leaves of *Circæa lutetiana & C. alpina.* Autumn. [Maine, U.S.]

1511. Puccinia prunorum. *Link.* "Plum-tree Brand."

Uredo-spores. Seated on definite yellowish spots; sori on the under surface scattered or in clusters, very minute, roundish, or oblong; spores at length rusty-brown, subglobose.—*Trichobasis rhamni, Cooke Seem. Journ.* ii. *p.* 344. *Cooke M. F. p.* 210. *Trichobasis pruni-spinosæ, Lev. Ann. Sc. Nat.*

Brand-spores. Spots obliterated; sori hypogenous, subrotund, scattered; epidermis obliterated; spores brown, pedunele

very short.—*Link. Sp.* ii. *p.* 82. *Eng. Fl.* v. *p.* 368. *Cooke M.F. p.* 201. *Cooke exs. no.* 51. *Baxt. exs. no.* 83. *Fckl. exs. no.* 330. *Cooke L.F. no.* 22. *Corda.* iv. *f.* 68. *Kl. exs. no.* 590.

On leaves of plum-tree, *Rhamnus catharticus*, &c.
[Low. & Mid. Carolina.]

1512. Puccinia fabæ. *Link.* "Bean Brand."

Uredo-spores. Spots obliterated; sori subrotund and oval; bullate, scattered and aggregate, surrounded by the ruptured epidermis; spores ovoid, brown.—*Trichobasis fabæ, Lev. Ann. Sc. Nat. Cooke M.F. p.* 209. *Cooke exs. no.* 71. *Cooke L.F. no.* 41.

Brand-spores. Spots none; sori subrotund, or elongated, surrounded by the ruptured epidermis; spores at length black, ovato-globose; pedunele slender.—*Link. Sp.* ii. *p.* 82. *Eng. Fl.* v. *p.* 369. *Cooke M.F. p.* 201. *Ung. Exan. t.* 7. *f.* 39 *B. P. globosa. Grev. t.* 29.

On beans. Aug.—Sept. [United States.]

1513. Puccinia fallens. *Cooke.* "Clover Brand."

Uredo-spores. Spots obliterated; sori amphigenous, numerous, scattered, subrotund, brown, surrounded by the remains of the ruptured epidermis; spores subovate; pedicels short, hyaline, evanescent: epispore verrucose.—*Cooke Seem. Journ. vol.* iv. 1866. *Cooke L.F. no.* 40. *Uredo fallens, Desmz. Ann. des Sc. Nat. ser.* 3, iii. *p.* 357. *Exs. ed.* i. *no.* 1325. *ed.* ii. *no.* 725.

Brand-spores. Sori few and small, scattered, intermixed with pustules of *Uredo-spores;* sporidia obovate, on rather long pedicels of a tawny colour, and slightly constricted at the septum; epispore smooth.—*Cooke Seem. Journ. vol.* iv. 1866.

On *Vicia sepium* and *Trifolium.*

1514. Puccinia buxi. *D.C.* "Box Brand."

Uredo-spores?

Brand-spores. Spots none; sori subrotund, convex, scattered; spores brown, oblong, rather strongly constricted, lower cell slightly attenuated; pedunele very long.—*D.C. Fl. Fr.* vi. *p.* 60. *Eng. Fl.* v. *p.* 369. *Cooke M.F. p.* 201. *Cooke exs. no.* 52. *Sow. t.* 439. *Moug. exs. no.* 676. *Kl. exs. no.* 1992, ii. 684. *Berk. exs. no.* 109. *Cooke L.F. no.* 23.

Gen. **168.** **GYMNOSPORANGIUM,** D.C.

Fig. 203.

Peduncles extremely long, agglutinated by gelatine into a tremelloid expanded mass; spores uni-septate. —*Berk. Outl. p.* 330. *Eng. Fl.* v. *p.* 361. (*Fig.* 203.)

1515. **Gymnosporangium juniperi.** *Lk.*

Forming a soft, gelatinous, irregular, orange mass; spores ovate or subelliptic, filled with subglobose granules.—*Fckl. exs. no.* 413. *Bisch. f.* 3881. *Berk. Outl. t.* 2, *f.* 5. *Eng. Fl.* v. *p.* 361. *Nees. f.* 23 *a. Cooke M.F. p.* 201.

On living twigs of *Juniperus communis.* [United States.]

Forming a very soft, gelatinous, irregular, orange mass, which dries up, so as frequently to leave scarcely any trace.—*M. J. B.* (*Fig.* 203.)

Gen. **169.** **PODISOMA,** Lk.

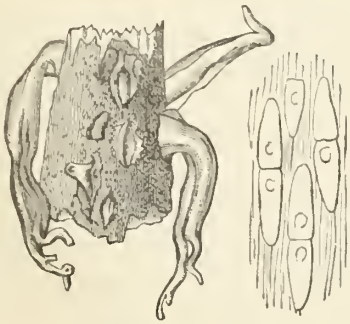


Fig. 204.

Peduncles extremely long, agglutinated by gelatine into a common stem, spreading out above into a *clavariæform* mass; spores mostly uniseptate.—*Berk. Outl. p.* 331. (*Fig.* 204.)

1516. Podisoma juniperi. *Fr.* "Juniper Podisoma."

Orange, clavariæform, somewhat branched; stroma simple; spores very long, lanceolate, filled with elliptic granules.—*Fr. S.M.* iii. *p.* 508. *Eng. Fl.* v. *p.* 362. *Bull. t.* 427, *f.* 1. *Berk. exs. no.* 106. *Cooke M.F. p.* 201. *Cooke exs. no.* 125. *Fckl. exs. no.* 415. *Bisch. f.* 3880. *Pay. f.* 354. *Ann. Sc. Nat.* (1854), *t.* 10, *f.* 1-12.

On living branches of *Juniperus communis.* April.

[Mid. Carolina.]

Œrsted regards this as a form of *Roestelia lacerata.* (*Fig.* 204.)

1517. Podisoma sabinæ. *Fr.* "Savin Podisoma."

Red-brown, tuberculiform and clavate, simple; stroma obliterated; spores obovate, uniseptate.—*Eng. Fl.* v. *p.* 362. *Nees. f.* 15. *Pers. Disp. t.* 2, *f.* 1. *Eng. Bot. t.* 710. *Fckl. exs. no.* 416. *Bisch. f.* 3882-3883. *Berk. Outl. t.* 2, *f.* 4. *Cooke M.F. p.* 201. *Berk. exs. no.* 107.

On living branches of *Juniperus sabinæ.* April. May.

According to Œrsted, this is a condition of *Roestelia cancellata.*

1518. Podisoma foliicolum. *B.* "Juniper-leaf Podisoma."

Epiphyllous, brown-black masses, subglobose, subelliptic, or irregular, consisting of radiating, crowded, very slender, agglutinated filaments, each bearing an elliptic or clavate, very obtuse spore, 3 to 5-septate.—*Berk. Eng. Fl.* v. *p.* 362. *Cooke M.F. p.* 201. *Fckl. exs. no.* 414.

On living leaves of common juniper.

Masses subelliptic or irregular, dark brown-black, consisting of radiating, crowded, very slender, agglutinated filaments each bearing an elliptic or clavate, very obtuse spore with 3-5 septa. Some of the filaments are simply clavate and barren.—*M. J. B.*

Order XVI. CÆOMACEI.

Parasitic on living plants; peridium absent; spores of one or two orders, simple.

CÆOMACEI.

Spores of one order—
- Simple and free.
- Without appendages.
  - Springing from delicate threads . . . *Tilletia.*
  - Produced in separate cells.
    - Deeply seated, pulverulent . . . *Ustilago.*
    - Superficial
      - Generally nearly black . . . *Ustilago.*
      - Yellow or brown . . . *Uredo.*
    - Not inclosed in separate cells . . . *Lecythea.*
- With peduncles.
  - Deciduous . . . *Trichobasis.*
  - Permanent . . . *Uromyces.*
- Compound.
  - Irregular . . . *Urocystis.*
  - Subglobose or shell-shaped . . . *Tuburcinia.*

Spores of two orders—
1. Sphærical
2. Cylindrical, septate . . . *Coleosporium.*
1. Sphærical
2. Wedge-shaped, compact . . . *Melampsora.*
1. Concatenate, exposed
2. Sphærical, myceloid . . . *Cystopus.*

Gen. **170.** **TILLETIA,** Tul.

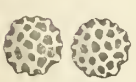


Fig. 205.

Spores sphærical, reticulated, proceeding from delicate branched threads.—*Berk. Outl. p.* 335. *Tul. Ann. Sc. Nat.* 1847. (*Fig.* 205.)

1519. Tilletia caries. *Tul.* "Bunt."

Included within the germen; spores spherical, rather large, black, reticulated.—*Tul. Ann. Sc. Nat.* 1847, vii. *t.* 5, *f.* 1-16. *Cooke M.F. p.* 202, *t.* v. *f.* 84-91. *Berk. Hort. Journ.* ii. *p.* 113. *Cooke Quek. Journ.* i. *p.* 167. *Cooke exs. no.* 53. *Tul. Ann. Sc. Nat. 4th. ser.* ii. *t.* 12, *f.* 1-26. *Uredo fœtida. Bauer Ann. Sc. Nat.* 1824, ii. *t.* 7, *f.* 17-20. *Uredo caries. Eng. Fl.* v. *p.* 375. *Ditm. t.* 34. *Berk. exs. no.* 113.

On wheat, filling the grains. Autumn. Common.
[United States.]

Fœtid when crushed. For particulars regarding the germination of these spores, see paper by Rev. M. J. Berkeley, in Horticultural Journal, and by the author in Quekett Journal, i. p. 167. (*Fig.* 205.)

Gen. **171.** **USTILAGO,** Link.

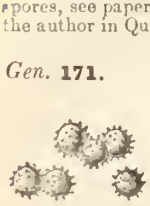


Fig. 206.

Plant deeply seated; spores simple, springing from delicate threads, or in closely packed cells, ultimately breaking up into a powdery mass.—*Berk. Outl. p.* 335. (*Fig.* 206.)

1520. **Ustilago carbo.** *Tul.* "Corn Smut."

Produced on the receptacle and rachis; epidermis soon ruptured; spores loose, minute, globose, black.—*Tul. Ann. Sc. Nat.* 1847), *t.* 3, *f.* 1-12. *Ustilago segetum. Ditm. t.* 33. *Cooke M.F. t.* 5, *f.* 98-99. *Cooke exs. no.* 54. *Corda.* iv. *f.* 9. *Uredo segetum. Pers. Syn. p.* 224. *Moug. exs. no.* 291. *Baxt. exs. no.* 43. *Eng. Fl.* v. *p.* 374. *Bull. t.* 472, *f.* 2. *Kl. exs. no.* 81.

On the ears of corn and grasses. Autumn. Common.
[United States.]

1521. **Ustilago urceolorum.** *Tul.* "Sedge Smut."

Produced on the glumes and utricles; epidermis soon bursting; spores in a compact mass, afterwards breaking up, globose, rather large, granulated.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 4, *f.* 7-10. *Cooke M.F. t.* 6. *f.* 109-111. *Nees. f.* 6. *Kl. exs. no.* 195. *Uredo urceolorum. D.C. Fl. Fr.* vi. *p.* 78. *Eng. Fl.* v. *p.* 375. *Sow. t.* 396, *f.* 4. *Berk. exs. no.* 114.

Surrounding the seed of various Carices as *Carex præcox*, *stellulata*, *recurva*, and *pseudo-cyperus*. Autumn. Rather common.
[Mid. and Up. Carolina.]

1522. **Ustilago longissima.** *Tul.* "Elongated Smut."

Produced on the leaves in linear, long, parallel, dirty-olive patches; epidermis bursting longitudinally; spores globose, breaking up into minute granules, olive-black.—*Tul. Ann. Sc. Nat.* (1847), vii. *p.* 76. *Cooke M.F. t.* 5, *f.* 105-107. *Cooke exs. no.* 55. *Uredo longissima. Sow. t.* 139. *Eng. Fl.* v. *p.* 375. *Berk. exs. no.* 230. *Kl. exs. no.* 84.

On leaves of *Poa aquatica* and *P. fluitans*. Summer. Common.

"Giving the leaves a very remarkable appearance."—*Eng. Fl.*

1523. Ustilago olivacea. *Tul.* "Olive Smut."

Infesting the enlarged receptacle; epidermis soon bursting; spores olive-green, powdery, minute, mixed with filaments.—*Tul. Ann. Sc. Nat.* (1847). *Cooke M.F. t.* 6, *f.* 126, 127. *Cooke exs. no.* 298, vii. *t.* 4, *f.* 11. *Uredo olivacea, Eng. Fl.* v. *p.* 376.

On *Carex riparia*.

1524. Ustilago hypodytes. *Fr.* "Grass-culm Smut."

Produced on the culms beneath the sheaths, afterwards exposed; spores minute, subglobose, brownish-black.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 3. *f.* 14. *Cooke M.F. t.* 5, *f.* 100, 101. *Cooke exs. no.* 56. *B. & Br. Ann. N.H. no.* 256, 481. *Uredo hypodytes, Desm. exs. no.* 473. *Kl. exs. no.* 83.

On the culms of various grasses. Summer. [Low. Carolina.]

1525. Ustilago maydis. *Corda.* "Maize Smut."

Produced on the stems, germens, &c.; epidermis at length bursting; spores spherical, minute, brownish-black, surface covered with echinulate warts.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 2. *Cooke M.F. t.* 5, *f.* 108. *Kl. exs. no.* 193. *Corda. Icon.* iv. 3. *Philip. Traite. t.* 5, 6, 7.

On stems, &c., of *Zea mays*. [United States.]

(Fig. 206, *spores magnified.*)

1526. Ustilago montagnei. *Tul.* "Beaksedge Smut."

Produced on the seeds; epidermis bursting; spores slightly angular, small, dark-coloured, intermixed sparingly with fragile filaments.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 5, *f.* 31. *Cooke M.F. t.* 5, *f.* 96, 97. *B. & Br. Ann. N.H. no.* 479.

On seeds of *Rhyncospora alba*. [Low. Carolina.]

1527. Ustilago grandis. *Tul.* "Reed Smut."

Produced on the stems of reeds, forming thick bullate patches several inches long, occupying whole internodes, covered by their sheath; spores globose, rather large.—*Tul. Ann. Sc. Nat.* (1847), vii *p.* 78. *Ustilago typhoides, B. & Br. Ann. N.H. no.* 480. *Cooke M.F. t.* 6, *f.* 128, 129.

On stems of *Arundo phragmitis*. Autumn.

"Forming thick bullate patches several inches in length, occupying whole internodes covered by their sheath. Spores larger than in *U. hypodytes* and *U. longissima*."—*B. & Br.*

1528. Ustilago salveii. *B. & Br.* "Cocksfoot Smut."

Produced on the leaves, forming elongated parallel sori on the upper surface; spores obovate, rather large, rough, with minute granules.—*B. & Br. Ann. N.H. no.* 482. *Cooke M.F. t.* 6, *f.* 117-18. *Cooke exs. no.* 57.

On leaves of *Dactyles glomerata* and other grasses.

A distinct and interesting species, exhibiting in its spores the type of an Uredo rather than of *Ustilago*. Spores four times as long as in *U. longissima*. —*B. & Br.*

1529. Ustilago grammica. *B. & Br.* "Banded Smut."

Forming little transverse bands, consisting of short parallel black lines; spores globose, very minute.—*B. & Br. Ann. N.H. no.* 483. *Cooke M.F. t.* 6, *f.* 120-122.

On stems of *Aira aquatica* and *A. cæspitosa*. Rare.

Forming little transverse fasciæ, consisting of short parallel black lines, a line or more in length. Spores far smaller than in *U. longissima*, not exceeding one-third of their diameter.—*B. & Br.*

1530. Ustilago vinosa. *Tul.* "Oxyria Smut."

Produced on the swollen receptacles; spores roundish, very small, and minutely papillose, separately pellucid, in clusters, violaceous.—*Tul. Ann. Sc. Nat.* (1847), vii. *p.* 96. *Cooke M.F. p.* 204. *B. & Br. Ann. N.H. no.* 484.

On the swollen receptacles of *Oxyria reniformis*.

Spores smaller than in *U. utriculosa*, and merely papillate, instead of being reticulated.—*B. & Br.*

1531. Ustilago utriculosa. *Tul.* "Utricle Smut."

Produced in the germen and perigonium; epidermis soon ruptured; spores effuse, minute, globose, purple-black.—*Tul. Ann. Sc. Nat.* (1847), vii. *p.* 102, *t.* 4, *f.* 2-6. *Cooke, M.F. t.* 6, *f.* 112-116. *Cooke exs. no.* 58. *Uredo utriculosa, Corda.* ii. *f.* 12. *Eng. Fl.* v. *p.* 377. *Nees. f.* 6.

On *Polygonum hydropiper* and other *Polygona*. Autumn. Common. [United States.]

1532. Ustilago flosculorum. *Tul.* "Floret Smut."

Produced within the florets; spores minute, purplish-brown. *Tul. Ann. Sc. Nat.* (1847), vii. *p.* 99. *Cooke M.F. t.* 6, *f.* 123-125. *Uredo flosculorum, Fr. S.M.* iii. *p.* 348. *Sow. t.* 396, *f.* 2? *Eng. Fl.* v. *p.* 379.

On florets of *Scabiosa arvensis.*

1533. Ustilago receptaculorum. *Fr.* "Goatsbeard Smut."

Produced within the receptacles; spores ovate, minute, reticulated, violet-brown, nearly black, very profuse, filling the receptacle.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 4, *f.* 1. *Cooke M.F. t.* v. *f.* 92-95. *Cooke exs. no.* 59. *Uredo receptaculorum. Desm. exs. no.* 128.

On receptacles of *Tragopogon pratensis.* June. July. Common.

1534. Ustilago antherarum. *Fr.* "Anther Smut."

Produced on the anthers and germens; spores subglobose, effuse, violet.—*Tul. Ann. Sc. Nat.* (1847), vii. *t.* 4, *f.* 12-19, *t.* 5, *f.* 23. *Cooke M.F. t.* 5, *f.* 102-104. *Sow. t.* 396, *f.* 1. *Kunze exs. no.* 218. *Uredo antherarum. Eng.Fl.* v. *p.* 381. *Nees. t.* i. *f.* 5. *Kl. exs. no.* 192.

On the anthers of *Silene, Lychnis,* &c. Common.

[United States.]

Gen. **172.** **THECAPHORA,** Fing.

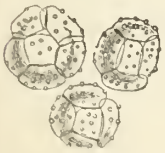


Fig. 207.

Spores oblong or subglobose, smooth, or echinulate, agglomerated together, few or many, into more or less angular masses enclosed in cysts.—*Tul. Ann. Sc. Nat.* 1847. (*Fig.* 207.)

1535. Thecaphora hyalina. *Fing.* "Hyaline Thecaphora."

Spores globose or oblong, minute, enclosed in large, hyaline, sub-hexagonal cysts.—*Fing. Linn.* x. *p.* 230. *Tul. Ann. Sc. Nat.* (1847), vii. *p.* 109. *B. & Br. Ann. N.H.* (1866) *no.* 1148. *Desm. exs. no.* 274. *Cooke exs. no.* 313.

In capsules of *Convolvulus soldanella.* Aug. King's Lynn. Exmouth.

There is no external evidence in the capsule of the presence of this smut, and it is only by breaking it open that the *Thecaphora* can be seen. It raises the testa of the green seed like a dark-coloured blister. The affected seeds shrivel, and do not become of the normal black colour. (*Fig.* 207.)

Gen. **173.** **TUBURCINIA,** Fr.

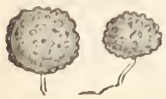


Fig. 208.

Plant deeply seated; spores multicellular, subglobose, or conchiform.—*Berk. Outl. p.* 335. (*Fig.* 208.)

1536. Tuburcinia scabies. *B.* "Potato Scab."

Spores globose, composed of minute cells, forming together a hollow globe, with one or more lacunæ, generally attached laterally by a slender thread, olive.—*B. & Br. Ann. N.H. no.* 489. *Berk. Hort. Journ.* i. *t.* 4, *f.* 30-31. *Cooke M.F. t.* 3, *f.* 54. *Rabh. exs. no.* 900.

On potatoes.

The spores of this species are very curious; they are composed of minute cells, forming together a hollow globe, with one or more lacunæ communicating with the external air. A hollow shell with one or two apertures will give a notion of their form. They are generally attached laterally by a delicate thread.—*B. & Br.* (*Fig.* 208 *spores.*)

1537. Tuburcinia trientalis. *B. & Br.* "Trientalis Smut."

Sori two lines broad, bullate, containing a black mass of rather irregular depressed subglobose spores, which are very opaque and distinctly cellular. Hyphasma white, branched, creeping, delicate.—*B. & Br. Ann. N.H. no.* 488. *Cooke M.F. t.* 3, *f.* 52-53.

On leaves of *Trientalis Europæa.*

Gen. **174.** **UROCYSTIS.**

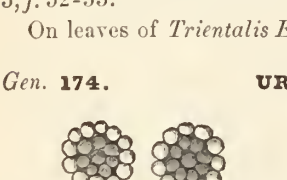


Fig. 209.

Spores irregular, consisting of several cells. — *Polycystis. Lev.* (*Fig.* 209.)

This genus is very closely allied to *Thecaphora.*

1538. Urocystis violæ. *B. & Br.* "Violet Smut."

Sori scattered, elongated, on both surfaces of the leaves and petioles; spores more or less globose, consisting of several cells, surrounded by a common irregular crust.—*Polycystis violæ. B. & Br. Ann. N.H. no.* 487. *Cooke exs. no.* 78. *Cooke M.F. p.* 212, *pl.* ix. *figs.* 185-186. *Granularia violæ. Sow. t.* 440.

On leaves and petioles of violets. August. Common.

Forming gouty swellings of the potioles and principal veins, and otherwise deforming the leaves, at length bursting in two or three places and exposing the sooty spores. "The spores are more or less globose, consisting of several cells, surrounded by a common irregular crust."

1539. Urocystis colchici. *Tul.* "Meadow Saffron Smut."

Sori elongated, bursting irregularly; spores smooth, or slightly papillose.—*Polycystis colchici. Tul. Ann. Sc. Nat.* (1847), vii. *p.* 117. *Cooke M.F. p.* 211. *B. & Br. Ann. N.H. no.* 485. *Sporisorium colchici. Lib. exs. no.* 194. *Uredo colchici Berk. exs. no.* 309.

On leaves of meadow saffron *(Colchicum autumnale).*

1540. Urocystis occulta. *Preuss.* "Rye Smut."

Sori very long, linear; epidermis bursting longitudinally; spores globose, with several projecting nodules, dark brown.—*Polycystis parallela. B. & Br. Ann. N.H. no.* 486. *Cooke M.F. p.* 212, *pl.* ix. *figs.* 187, 188. *Preuss. Sturm. t.* 1. *Uredo parallela. Eng. Fl.* v. *p.* 375.

On culms and sheaths of rye, and on the leaves of *Carices.*

In long parallel lines on the leaves, with very much the habit of an *Ustilago.* (*Fig.* 209.)

1541. Urocystis pompholygodes. *Schlecht.* "Buttercup Smut."

Sori variable, bullate; epidermis inflated, at first entire, then bursting irregularly, its remains surrounding the clusters; spores copious, subglobose, black, opaque or pellucid.—*Polycystis pompholygodes Lev. Cooke M.F. p.* 212, *pl.* ix. *figs.* 183, 184. *Cooke exs. no.* 79. *Uredo pompholygodes. Berk. Ann. N.H. no* 137. *Berk. exs. no.* 236.

On *Ranunculus repens* and other *Ranunculaceæ.* Summer. Common.

Causing gouty swellings of the petioles, and the principal veins of the leaves. At length bursting and exposing the sooty spores. Not uncommon on the Wood Anemone.

Gen. **175.** **UROMYCES,** Lev.

Fig. 210.

Spores uniloeular, attached permanently to a decided pedunele of greater length.—*Berk. Outl. p.* 333. (*Fig.* 210.)

1542. Uromyces alliorum. *D.C.* "Garlic Rust."

Spots obliterated, sori linear, oblong, or oval, amphigenous; spores subglobose, yellow.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 211. *Uredo alliorum. Eng. Fl.* v. *p.* 376 *(partly). Uredo porri. Sow. t.* 411.

On species of *Allium.*

1543. Uromyces appendiculata. *Lev.* "Long-stemmed Rust."

Spots yellowish-brown, sori subrotund and oval, confluent, nearly plane, on the under surface; epidermis bursting; spores ovoid, brown, with a long peduncle.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 7, *f.* 149, 150. *Cooke exs. no.* 323. *Uredo appendiculosa. Eng. Fl.* v. *p.* 383.

On *Leguminosæ*, and other plants. Aug. and Sept. Common. [Mid. Carolina.]

1544. Uromyces apiculosa. *Lev.* "Short-stemmed Rust."

Spots yellow or brown, sori subrotund, scattered, surrounded by the ruptured epidermis; spores ovoid, brown, shortly pedunculate.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 7, *f.* 154, 155. *Cooke exs. no.* 322. *Berk. exs. no.* 116-117. *Cooke L.F. no.* 26. *Uredo apiculosa. Eng. Fl.* v. *p.* 382.

On dock and various other plants. Aug. Sept. Common. [United States.]

1545. Uromyces limonii. *Lev.* "Sea-lavender Rust."

Epiphyllous, sori bullate, scattered, or disposed in rings; spores ovate.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 211.

On *Statice limonia.*

1546. Uromyces ficariæ. *Lev.* "Pilewort Rust."

Spots yellowish, sori scattered, aggregate, confluent, and expanded; epidermis ruptured; spores ovoid, brown.—*Lev. Ann.*

Sc. Nat. Cooke M.F. t. 7. f. 156, 157. *Cooke exs. no.* 122. *Berk. exs. no.* 237. *Cooke L.F. no.* 24. *Uredo ranunculacearum. Eng. Fl.* v. *p.* 380.

On *Ranunculus ficaria.* May. June. Common.

1547. Uromyces intrusa. *Lev.* "Lady's Mantle Rust."

On the under surface, scattered, or partially aggregate, reddish-brown, rounded, somewhat prominent, minute, very unequal; spores roundish or oval.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 211. *Cooke exs. no.* 121. *Cooke L. F. no.* 27. *Uredo intrusa. Eng. Fl.* v. *p.* 382. *Trachyspora alchemillæ. Fckl. exs. no.* 318.

On *Alchemilla vulgaris.*

1548. Uromyces concentrica. *Lev.* "Hyacinth Rust."

Spots oblong or subrotund, crowded into patches; epidermis bursting longitudinally; spores rubiginous, obovate, shortly pedunculate.—*Lev. Ann. des Sc. Nat. Cooke exs. no.* 76. *Cooke M.F. ed.* ii. *p.* 225. *U. scillæ. Fckl. exs. no.* 401. *Uredo concentrica. Desm. Ann. Sc. Nat. ser.* 3, *t.* vi. *p.* 62, *exs. no.* 1478. *West & Wall, no.* 675. *Trichobasis scillarum. Berk. Outl. p.* 332. *Cooke M.F. p.* 208. *Uredo scillarum. Grev. Berk. Eng. Fl.* v. *p.* 376. *Uredo muscari. Duby. Bot. Gall.* ii. *p.* 838 ? *Puccinia scillarum. Baxt. exs. no.* 40.

On leaves of Wild Hyacinth.

1549. Uromyces polygoni. *Fckl.* "Knot-grass Rust."

Cauline; sori elongated and confluent, convex, surrounded by the remains of the ruptured epidermis; sporidia subglobose or globose, smooth, yellowish-brown; pedicels very long, thickened, hyaline, persistent.—*Fckl. exs. no.* 399. *Cooke Seem. Journ. Cooke M.F. ed.* ii. *p.* 225. *Capitularia polygoni. Rabh. Bot. Zeit.* 1851, *p.* 449. *Rabh. exs.* i. *no.* 1995. *F.E. no.* 185. *Puccinia vaginalium. Link. Sp. Pl. (in part).*

On stems of *Polygonum aviculare.*

1550. Uromyces sparsa. *Lev.* "Spergularia Rust."

Spots pallid; sori subrotund and oval, amphigenous and cauline; epidermis erumpent; sporidia ovoid, brownish; pedunceles thickened, short.—*Lev. Ann. des Sc. Nat.* 1847, viii. *p.* 369. *Fr. Summ.* 514. *Cooke M.F. ed.* ii. *p.* 225. *Uredo sparsa. Kze. exs. no.* 170. *Cæoma sparsum. Link. Sp. Pl.* ii. *p.* 27.

On *Spergularia rubra.* Swanscombe, Kent.

1551. Uromyces graminum. *Cooke.* "Cocksfoot Rust."

Epiphyllous on both surfaces; sori oblong, or confluent and linear, convex, black and shining, so as easily to be confounded on casual observation with *Dothidia graminis*, P., at length bursting longitudinally; sporidia subglobose or ovate, tawny, with hyaline pedicels of variable length.—*Cooke Seem. Journ. Cooke M.F. ed.* ii. *p.* 225.

On leaves of *Dactylis glomerata*. Oct. Shere.

This is undoubtedly the *Uromyces*—form of *Puccinia graminis*, although I have not hitherto been able to trace the connection. It seems strange that it should have hitherto been unnoticed.

Uromyces ulmariæ. *Lev.* See *Triphragmium ulmariæ*.

Uromyces primulæ. *Lev.* See *Puccinia primulæ*.

Uromyces iridis. *Lev.* See *Puccinia truncata*.

Gen. **176. COLEOSPORIUM,** Lev.

Fig. 211.

Spores cylindrical, septate, some separating at the joints, some of a different nature, persistent.—*Berk. Outl. p.* 333. (*Fig.* 211.)

1552. Coleosporium tussilaginis. *Lev.* "Coltsfoot Rust."

On the under surface, prominent, crowded, generally forming circles, becoming very confluent; spores numerous, subovate, orange-yellow.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 8, *f.* 180, 181. *Cooke exs. no.* 80. *Uredo compransor. Eng. Fl.* v. *p.* 379. (*partly*). *Moug. exs. no.* 390.

On Coltsfoot leaves. Summer. Common. (*Fig.* 211.)

1553. Coleosporium pingue. *Lev.* "Tawny Rose Rust."

Spots obliterated; sori effuse, on the nerves and petioles of the leaves; spores ovoid, yellowish-brown.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 212. *Uredo pinguis. D.C. Fl. Fr.* ii. *p.* 235. *U. effusa. Eng. Fl.* v. *p.* 381 (*partly*).

On roses, &c.

1554. Coleosporium petasitis. *Lev.* "Butterbur Rust."

On the under surface, minute, depressed, spreading, somewhat aggregate, subconfluent, irregular in form; spores oval, orange, or orange-red.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 213. *Cooke exs. no.* 321. *Cooke L.F. no.* 45. *Uredo compransor. Eng. Fl.* v. *p.* 379. *partly. U. petasites. Grev. Fl. ed. p.* 441.

On *Tussilago petasites.* Autumn.

1555. Coleosporium campanulæ. *Lev.* "Campanula Rust."

Spots obliterated, brown on the opposite side; sori irregular, confluent, plane, on the under surface; spores subglobose, cohering, yellow, at length pale.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 213. *Cooke exs. no.* 81. *Uredo campanulæ. Eng. Fl.* v. *p.* 378. *Baxt. exs. no.* 41. *Berk. exs. no.* 336.

On leaves of various *Campanulæ.* Sept. Oct.

1556. Coleosporium sonchi-arvensis. *Lev.* "Sow-thistle Rust."

On the under surface, depressed, irregular in form, scattered, partially confluent; spores ovate, reddish-orange.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 8, *f.* 178-179. *Cooke exs. no.* 82. *Uredo sonchi. Pers. Syn. p.* 217. *U. compransor. Eng. Fl.* v. *p.* 379 (*partly*).

On *Sonchus oleraceus* and *arvensis.* Summer. Common.

1557. Coleosporium rhinanthacearum. *Lev.* "Cow-wheat Rust."

Spots none, or subferruginous; sori irregular, confluent on the under, rarely on both surfaces; spores subglobose, compact, golden yellow.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 8, *f.* 176, 177. *Cooke exs. no.* 299. *Uredo rhinanthacearum. Eng. Fl.* v. *p.* 377.

On *Euphrasia, Bartsia, Melampyrum,* &c. Aug. Sept. Common.

Gen. **177. MELAMPSORA.** Cast.

Fig. 212.

Fig. 213.

Spores of two orders (1), diffuse, globose, or oblong; (2) crowded into a dense, compact mass, with or without a covering, wedge-shaped.—*Berk. Outl. p.* 333. (*Figs.* 212, 213.)

1558. Melampsora salicina. *Lev.* "Willow Brand."

Summer-spores. Epiphyllous or hypophyllous, sori, or heaps of spores scattered, pale orange, bright orange, or cinereous. (June to August.) Ovato-globose, paraphyses capitate, rarely obovate.—*Lecythea caprearum. Lev. Ann. Sc. Nat. Uredo caprearum. Eng. Fl.* v. *p.* 385. *U. epitea. Kze. Lec. epitea Ann. N.H. no.* 477.

Winter-spores. Sori epiphyllous, scattered or aggregate, at first yellowish tawny, then brownish, at length nearly black, bullate; spores oblong, closely packed, and laterally compressed. —*Lev. Ann. Sc. Nat. Tul. Ann. Sc. Nat.* 4, *ser. vol.* ii. *t.* 7, *f.* 6-7. *Cooke M.F. t.* 9, *f.* 191, 192. *Cooke exs. no.* 85. *Cooke L.F. no.* 49.

On *Salix viminalis* and *S. capræa.* Common.

Spores perfected in February. *(Fig.* 213, *winter spores.)*

1559. Melampsora betulina. *Desm.* "Birch Brand."

Summer-spores. Hypophyllous, sori bright yellow or orange, oblong, cylindrical, or obovate, truncate at the base, echinulate; paraphyses encircling, or intermixed, obovate, smooth, hyaline. *Uredo betulina. U. cylindrica. Eng. Fl.* v. *p.* 385 *(partly.) Lecythea betulina. Lev. Ann. Sc. Nat.*

Winter-spores. Sori confluent, of an obscure brown in the winter, becoming of a bright orange when mature; spores elongated, attenuated below, polygonal, ochraceous.—*Lev. Ann. Sc. Nat. Desm. exs. no.* 1647. *Lib. exs. no.* 336. *Cooke. M.F. t.* 9, *f.* 189, 190. *Tul. Ann. Sc. Nat. ser.* 4, *vol.* ii. *t.* 7, *f.* 8, 9. *Cooke exs. no.* 124.

On leaves of *Betula alba.*

Spores perfected in Jan. and Feb. *(Fig.* 212, *winter spores.)*

1560. Melampsora tremulæ. *Tul.* "Aspen Brand."

Summer-spores. Hypophyllous; sori punctiform, prominent, or papillæform, numerous; spores tawny-yellow, elliptical, or obovate; paraphyses slender.—*Uredo cylindrica. Eng. Fl.* v. *p.* 385, *partly. Lecythea populina. Cooke M.F. p.* 206, *partly.*

Winter-spores. Sori scattered, at length blackish; spores elongated, compressed, attenuated downwards, yellowish.—*Tul.*

Ann. Sc. Nat. ser. 4, *vol.* ii. *p.* 95. *Cooke M.F. p.* 214. *Cooke exs. no.* 84. *Cooke L.F. no.* 48.

On leaves of *Populus tremula*. Common.

Spores perfected during the winter.

1561. Melampsora populina. *Lev.* "Poplar Brand."

Hypophyllous, epiphyllous, or amphigenous.

Summer-spores. Spores yellow or orange, obovate-oblong, attenuated or truncate, echinulate, paraphyses obovate, capitate, or claviform, abundant in fully ripened sori.—*Uredo longicapsula D.C. U. cylindrica. Eng. Fl.* v. *p.* 385, *partly. Lecythea populina. Lev. Ann. Sc. Nat. Cooke M.F. p.* 206. *Cooke exs. no.* 83.

Winter-spores. Sori at first tawny-yellow, becoming black during the winter, swelling in the spring, and becoming of a cinnamon colour, on the upper surface of the leaves, roundish or oblong; spores prism-shaped, 5-6 together, yellowish, smooth.—*Tul. Ann. Sc. Nat.* 4. *ser. vol.* 2, *t.* 7, *f.* 10. *Cooke Micr. Fungi. pl.* ix. *figs.* 195, 196. *Cooke exs. no.* 83. *Cooke L.F. no.* 47.

On leaves of *Populus nigra*. Common.

Spores perfected in February.

1562. Melampsora euphorbiæ. *Cast.* "Spurge Brand."

Summer-spores. Hypophyllous; sori golden yellow, scattered, distinct, sometimes cauline; spores small, subglobose.—*Uredo euphorbiæ. Eng. Fl.* v. *p.* 385. *Lecythea euphorbiæ. Lev. Ann. Sc. Nat. Cooke M.F. p.* 206. *Cooke exs. no.* 65. *Berk. exs. no.* 240.

Winter-spores. Sori becoming black, small, roundish; spores prismatic, membrane thickened above, dark-brown.—*Tul. Ann. Sc. Nat. ser.* 4, *vol.* ii. *p.* 100. *Cooke M.F. pl.* ix. *figs.* 193, 194.

On leaves and stems of *Euphorbia helioscopia*, *E. exigua*, and other species. Common.

Melampsora padi. This name has been given by some author to a *Melampsora*, on leaves of *Prunus padus*, which we have once met with in Kent. It was noted at the time, but reference to the author and description was not made, hence it cannot be recorded here beyond the present notice.

Gen. **178.** **CYSTOPUS,** De Bary.

Fig. 215.

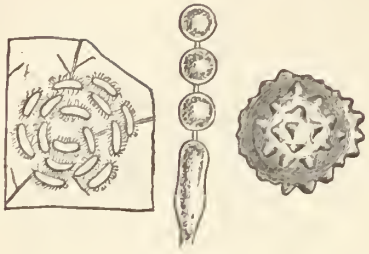


Fig. 214.

Receptacle consisting of thick branched threads; conidia concatenate, at length separating, oospores deeply seated on the mycelium.—(*Figs.* 214, 215.)

1563. **Cystopus cubicus.** *Str.* "Goat's-beard White Rust."

Conidia unequal; terminal cell sterile, larger than the rest, membrane thickened, ochraceous, rarely yellowish; fertile cells shortly cylindrical; membrane hyaline; *oospores* globose; epispore, brown, verrucose; warts hollow, round or irregular.—*Cooke M.F. pl.* x. *figs.* 201, 202, 210. *Cooke exs. no.* 86.

On *Goat's-beard*, *Salsify*, *Scorzonera*, &c. Summer and autumn. Common. (*Fig.* 215.)

1564. **Cystopus candidus.** *Lev.* "Crucifer White Rust."

Conidia equal, globose; membrane equal, ochraceous; *oospores* subglobose; epispore yellowish-brown, with irregular obtuse warts; warts solid.—*Lev. Ann. Sc. Nat. Berk. Outl. p.* 334, *partly. Eng. Fl.* v. *p.* 384. *Grev. t.* 251. *Moug. exs. no.* 290. *Cooke exs. no.* 86. *Cooke L.F. no.* 46. *Cooke M. F. pl.* x. *figs.* 198-200, and 205-207.

On shepherd's purse, cabbages, horseradish, and other *Cruciferæ*, Summer. Common. (*Fig.* 214, *conidia & oospore.*)

1565. **Cystopus lepigoni.** *De By.* "Sandwort White Rust."

Conidia unequal; terminal cell sterile, globose; membrane thickened; fertile cells subglobose or cylindrical; membrane

hyaline; *oospores* globose, epispore brown, tubercles minute, irregular, very convex, often resembling spines.—*Cooke M. F. p.* 214. *Cooke exs. no.* 88.

On *Spergularia rubra.* June.—Sept.

1566. Cystopus spinulosus. *De Bary.* "Thistle White Rust."

Conidia in time much elongated; sori erumpent, on both surfaces of the leaves, white; *oospores* globose; epispore brown, tubercles minute, solid, very prominent, often acute and spinulose.—*De Bary, Ann. des Sc. Nat.* 1864, xx. *p.* 133. *Cooke exs. no.* 89.

On *Cirsium arvense.* Sept.

Gen. **179.** **UREDO,** Lev.

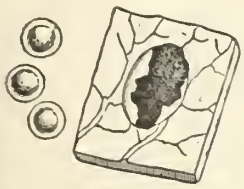


Fig. 216.

Stroma composed of little irregular cells, forming a lentiform disk, whose surface is covered with many layers of cells, each of which encloses a spore; spores simple, always without any appendage.—*Berk. Outl. p.* 331. (*Fig.* 216.)

* Spores more or less yellow.

1567. Uredo potentillarum. *D.C.* "Potentilla Uredo."

Spots yellowish; sori subrotund and oval, bullate, aggregate, open, confluent; spores subglobose, subcoherent, orange.—*D.C. Fl. Fr.* vi. *p.* 81. *Eng. Fl.* v. *p.* 382, *partly. Cooke M.F. p.* 204. *Cooke exs. no.* 120. *Moug. exs. no.* 91.

On various *Rosaceæ.* Common.

1568. Uredo saxifragarum. *D.C.* "Saxifrage Uredo."

Spots pallid; sori subrotund and oval, raised, scattered and aggregate on the under surface; epidermis ruptured, persistent; spores subglobose, yellow.—*D.C. Fl. Fr.* vi. *p.* 87. *Eng. Fl.* v. *p.* 381. *Cooke. M.F. p.* 204.

On various *Saxifrages.*

1569. Uredo filicum. *Desm.* "Fern Uredo."

Spots yellowish ; sori subrotund, bullate, scattered and aggregate on the under surface ; epidermis at length bursting ; spores subglobose, yellow.—*Desm. exs. no.* 530. *Eng. Fl.* v. *p.* 383. *Cooke M.F. p.* 204. *Sow. t.* 320. *Moug. exs. no.* 289. *Berk. exs. no.* 339.

On fronds of ferns (*Cystopteris*, &c.).

1570. Uredo pustulata. *P.* "Willow-herb Uredo."

Spots yellowish ; sori subrotund, minute, closed, scattered and confluent on both surfaces ; spores globose, yellow.—*Pers. Syn. p.* 219. *Eng. Fl.* v. *p.* 381. *Cooke M.F. p.* 204. *Cooke exs. no.* 210. *Cooke L.F. no.* 29.

On *Epilobium palustre*, &c.

1571. Uredo hypericorum. *D.C.* "St. John's-wort Uredo."

Spots yellowish ; sori subrotund, small, bullate, distinct, scattered on the under surface ; epidermis at length bursting ; spores subglobose, cohering, orange.—*D.C. Fl. Fr.* vi. *p.* 81. *Eng. Fl.* v. *p.* 380. *Cooke M.F. t.* 8, *f.* 174, 175. *Cooke exs. no.* 118. *Baxt. exs. no.* 42.

On various species of *Hypericum*. August.

1572. Uredo caryophyllacearum. *Johnst.* "Stitch-wort Uredo."

Spots yellowish ; sori subglobose, scattered and aggregate, minute, generally on the under surface ; epidermis closed ; spores oval, at length yellow.—*Johnst. Fl. Berw.* ii. *p.* 199. *Eng. Fl.* v. *p.* 381. *Cooke M.F. p.* 204. *Cooke exs. no.* 60. *Cooke L.F. no.* 30.

On various *Caryophyllaceæ*. Autumn.

1573. Uredo quercûs. *Brond.* "Oak-leaf Uredo."

On the under surface ; sori yellow, then orange, minute, ovate, and orbicular, slightly prominent, scattered, solitary or agglomerated into minute patches, surrounded by the ruptured epidermis ; spores subglobose, pellucid, not cohering.—*Eng. Fl.* v. *p.* 383. *Cooke M. F. p.* 205. *Cooke exs. no.* 281. *Berk. exs. no.* 239.

On green oak leaves. Sept.

We have always found it on young oak scrub the second year after it has been cut down, never on trees. The sori are very much scattered, and but few on a leaf.

1574. Uredo padi. *Kze.* "Bird-cherry Uredo."

Spots purplish; sori subrotund, small, aggregate, hypogenous; epidermis at length ruptured; spores coherent, subglobose.—*Kze. exs. no.* 187. *B. & Br. Ann. N.H.* 1865, xv. *p.* 401, *no.* 1045. *U. porphyrogenita. Link. Sp.* ii. *p.* 31. *Cooke M.F. p.* 205.

On leaves of *Prunus padus.* Scotland.

1575. Uredo vaccinioram. *P.* "Bilberry Uredo."

Spots yellow-brown; sori subrotund, minute, aggregate, and scattered, on the under surface of the leaves; epidermis seldom ruptured; spores ovoid, yellowish.—*Eng. Fl.* v. *p.* 378. *Lk. Sp.* ii. *p.* 15. *Cooke M.F. p.* 205. *Cooke exs. no.* 119.

On *Vaccinium myrtillus* and *V. vitis-idæa.*

[Low. Carolina.]

1576. Uredo confluens. *D.C.* "Confluent Uredo."

On the under surface, depressed, yellow, oblong, concentric, at length confluent; spores nearly oval.—*D.C. Fl. Fr.* ii. *p.* 233. *Eng. Fl.* v. *p.* 383. *Cooke. M.F. t.* 7, *f.* 133, 134. *Cooke exs. no.* 117.

On *Mercurialis perennis* and *M. annua.* May. June. Common.

var. α. **euonymi.** Spots yellowish; sporidia ovoid and slightly coherent, tawny-yellow.—*Mart. Fl. Mosq. p.* 230.

On leaves of *Euonymus Europæus.*

var. β. **orchidis.** Spots reddish-brown; sporidia nearly oval, bright yellow.—*Mart. Fl. Mosq.* 229. *Cooke exs. no.* 61. *Uredo confluens, γ. Orchidis. Alb. & Sch. p.* 122. *Uredo circinalis, a. Orchidis, Strauss. Wett. Ann.* ii. 88. *Cæoma orchidum. Lk. Sp. Pl.* ii. *p.* 9.

On leaves of *Listera ovata* and *Orchis latifolia.*

1577. Uredo empetri. *D.C.* "Crowberry Uredo."

Hypogenous; spots obliterated; sori oval, scattered, the epidermis at first convex, afterwards ruptured and concave; sporidia ovoid or subglobose, bright yellow.—*D.C. Fl. Fr.* vi. *p.* 87. *Moug. exs. no.* 391. *Cæoma empetri. Lk. Sp. Pl.* ii. *p.* 16. *Cooke Seem. Journ.* iv. *p.* 99.

On *Empetrum nigrum.* May. N. Wales.

1578. Uredo tropœoli. *Desm.* "Tropœolum Uredo."

Hypogenous; spots pale yellow; sori minute, roundish, scattered, or confluent: sporidia ovoid or subglobose, orange.—*Desm. Ann. des Sc. Nat.* 1836, vi. *p.* 243. *Desm. exs. ed.* i. *no.* 837, *ed.* ii. *no.* 37. *Cooke Seem. Journ.* iv. *p.* 97.

On leaves of *Tropœolum*. Oct.

1579. Uredo alliorum. *D.C.* "Garlic Uredo."

Spots obliterated; sori linear, oblong, and oval, on both surfaces; spores ovoid or subglobose, yellow or whitish.—*D.C. Fl. Fr.* vi. *p.* 82. *Eng. Fl.* v. *p.* 376, *partly*. *Cooke M.F. p.* 205.

On various species of *Allium*.

* * Spores brown.

1580. Uredo statices. *Desm.* "Sea Lavender Uredo."

Sori few and scattered, orbicular or oval; spores globose, brown.—*Berk. Outl. p.* 331. *Cooke M.F. p.* 205.

On various species of *Statice*.

1581. Uredo bifrons. *Grev.* "Twin-faced Uredo."

On both surfaces of the leaves, often opposite, scattered, round, light-brown, girt with the remains of the epidermis; spores globose.—*Grev. Fl. ed. p.* 435. *Eng. Fl.* v. *p.* 383. *Cooke M.F. t.* 7. *f.* 137-139.

On *Rumex acetosa* and *acetosella*. July.—Sept.

Uredo circæ. *A. & S.* See *Puccinia circææ*.

Gen. **180.** **TRICHOBASIS,** Lev.

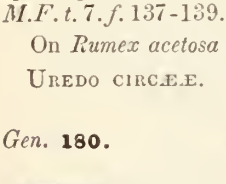


Fig. 217.

Spores free, attached at first to a short pedunele, caduceous.—*Berk. Outl. p.* 332. (*Fig.* 217.)

It is very probable that none of the species here recorded under this genus are autonomous, but until this is satisfactorily traced, they are included. Species known to be forms of other fungi are inserted there.

* Spores yellow.

1582. Trichobasis glumarum. *Lev.* "Glume Rust."

Sori minute, round, scarcely convex, subgregarious, often confluent; spores globose or subovoid, orange, not pedicellate; epispore smooth.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 208. *Berk. Outl. p.* 332.

On the glumes of Cereals. August.

1583. Trichobasis symphyti. *Lev.* "Comfrey Rust."

Sori minute, very numerous, scattered, roundish, then confluent; epidermis ruptured, scarcely conspicuous around the margin; spores subglobose, pallid orange.—*Lev. Ann. Sc. Nat.* 1847. *Cooke M.F. p.* 208. *Berk. Outl. p.* 332. *Uredo symphyti. D.C. Fl. Fr.* v. *p.* 87. *Berk. exs. no.* 320. *Ann. N.H. no.* 475.

On *Comfrey*. May.

1584. Trichobasis pyrolæ. *B.* "Winter-green Rust."

Spots yellowish brown on the opposite side; sori globose, minute, scattered or aggregate, on the under surface; epidermis generally closed; spores subglobose, yellow.—*Berk. Outl. p.* 332. *Cooke M.F. p.* 208. *Uredo pyrolæ. Grev. Fl. ed. p.* 440. *Link. Sp.* ii. *p.* 15.

On *Pyrola rotundifolia*, &c.

1585. Trichobasis petroselini. *B.* "Parsley Rust."

Spots yellowish; sori subrotund and oval, confluent on both surfaces; epidermis at length ruptured; spores globose or subglobose, occasionally obsoletely pedicellate, pale yellow.—*Berk. Outl. p.* 332. *Lev. Ann. Sc. Nat. Cooke M.F. p.* 208. *Cooke L.F. no.* 34. *Uredo petroselini. D.C. Fl. Fr.* ii. *p.* 597. *Eng. Fl.* v. *p.* 379. *U. æcidiiformis. Grev. Fl. ed. p.* 441.

On various *Umbelliferæ*, as *Smyrnium*, *Scandix*, *&c.*

Most probably this is the Uredo form of *Puccinia Smyrnii*.

* * Spores brown.

1586. Trichobasis oblongata. *B.* "Luzula Rust."

Spots oblong, often confluent, yellow-brown; sori elliptic, on both surfaces; epidermis closed; spores brown, obtuse at either

extremity.—*Berk. Outl. p.* 208. *Cooke M.F. t.* 7, *f.* 158, 159. *Uredo oblongata. Grev. t.* 12. *Eng. Fl.* v. *p.* 376.

On *Luzulæ*. May.—July.

1587. Trichobasis betæ. *Lev.* "Beet-leaf Rust."

Spots yellow; heaps subrotund and oval, scattered and concentric, on the upper surface; epidermis at length bursting; spores subglobose, shortly pedicellate, brown.—*Berk. Outl. p.* 208. *Cooke M.F. p.* 209. *Cooke exs. no.* 70. *Uredo Betæ. Pers. Syn. p.* 220. *Eng. Fl.* v. *p.* 377. *Berk. exs. no.* 60. *Cooke L.F. no.* 39.

On leaves of *Beta vulgaris*. Aug. Sept. Common.

1588. Trichobasis suaveolens. *Lev.* "Thistle Rust."

Spots obliterated, yellow on the opposite side; sori subrotund, nearly plane, scattered, at length confluent, on the under surface, surrounded by the ruptured epidermis; spores globose, brown.—*Berk. Outl. p.* 208. *Cooke M.F. t.* 7, *f.* 151, 153. *Cooke exs. no.* 73. *De Bary Brandpilze, t.* iii. *f.* 1-4. *Uredo suaveolens. Pers. Syn. p.* 221. *Eng. Fl.* v. *p.* 379.

On leaves of *Cnicus arvensis*, &c. Summer. Common.

It generally covers the whole under surface of the leaves, and has a peculiar odour, more or less strong.

1589. Trichobasis geranii. *B.* "Geranium Rust."

Spots yellowish; sori subrotund, nearly plane, scattered or confluent; spores subglobose, brown.—*Berk. Outl. p.* 208. *Cooke M.F. p.* 210. *Uredo geranii. D.C. Fl. Fr.* vi. *p.* 73. *Grev. t.* 8. *Eng. Fl.* v. *p.* 380. *Sow. t.* 398, *f.* 5.

On various geraniums.

1590. Trichobasis hydrocotyles. *Cooke.* "Fluke-wort Rust."

Without definite spots; sori chiefly on the upper, sometimes on the under surface, scattered, variable, roundish, erumpent, surrounded by the ruptured epidermis; spores subglobose, at length brown; epispore rough with minute tubercles.—*Cooke Seem. Journ. Bot.* ii. *p.* 344, *M.F. p.* 209, *t.* 8, *f.* 168, 169. *Cooke exs. no.* 69. *Uredo Hydrocotyles. Bertero. Mont. Fl. Fernand. no.* 59. *Fl. Chil.* viii. *p.* 50. *Ann. Sc. Nat.* 1835. *Mont. Syll. p.* 315. *Desm. exs. no.* 2123. *Rav. Fung. Car. Cooke L.F. no.* 44.

On *Hydrocotyle vulgaris*. July.—Sept. [S. Carolina.]

1591. Trichobasis parnassiæ. *Cooke.* "Grass of Parnassus Rust."

On both surfaces of the leaves; sori at first bullate, at length rupturing the epidermis, scattered, often confluent; spores globose or nearly so, rather large, tawny brown.—*Cooke Seem. Journ. Bot.* ii. *p.* 344. *Cooke M.F. p.* 210. *Cooke exs. no.* 74. *Uredo parnassiæ. West. Bull. de Brux.* xix. *no.* 87. *Herb. Crypt. Belge. no.* 676. *Ann. N.H. no.* 1046.

On *Parnassia palustris.* Sept. Norfolk.

Trichobasis rubigo-vera. *Lev.*
Trichobasis linearis. *Lev.* } See *Puccinia graminis.*

Trichobasis senecionis. *Berk.* See *Puccinia glomerata.*

Trichobasis caricina. *Berk.* See *Puccinia striola.*

Trichobasis scillarum. *Berk.* See *Uromyces concentrica.*

Trichobasis cichoracearum. *Lev.* See *Puccinia compositarum.*

Trichobasis artemisiæ. *Berk.* See *Puccinia discoidearum.*

Trichobasis labiatarum. *Lev.* See *Puccinia menthæ.*

Trichobasis lychnidearum. *Lev.* See *Puccinia lychnidearum.*

Trichobasis umbellatarum. *Lev.* See *Puccinia umbelliferarum.*

Trichobasis heraclei. *Berk.* See *Puccinia heraclei.*

Trichobasis fabæ. *Lev.* See *Puccinia fabæ.*

Trichobasis galii. *Lev.* See *Puccinia galiorum.*

Trichobasis polygonorum. *Berk.* See *Puccinia polygonorum.*

Trichobasis vincæ. *Berk.* See *Puccinia vincæ.*

Trichobasis violarum. *Berk.* See *Puccinia violarum.*

Trichobasis epilobii. *Berk.* See *Puccinia pulverulenta.*

Gen. **181. LECYTHEA,** Lev.

Stroma surrounded or sprinkled with elongated abortive spores. Spores free, invested with their mother cell, or concatenate.—*Berk. Outl. p.* 334.

a. Spores free.

1592. Lecythea mixta. *Lev.* "Orange Willow Rust."

Spots yellow; sori subrotund, aggregate, confluent, effuse, permanently surrounded by the ruptured epidermis; spores ob-

long and pyriform, orange.—*Lev. Ann. Sc. Nat.* 1847, *p.* 374. *Ann. N.H. no.* 478. *Cooke M.F. p.* 206. *Cæoma mixtum. Link. Berk. exs. no.* 120.

On both surfaces of the leaves of willows.

1593. Lecythea saliceti. *Lev.* "Common Willow Rust."

Spots yellowish; sori subrotund, solitary, or in circles, surrounded by the ruptured epidermis; barren spores subglobose and pedicellate or pyriform, fertile spores subglobose, orange.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 207. *Berk. Outl. p.* 334. *Uredo saliceti. Eng. Fl.* v. *p.* 385.

On the under surface of willow leaves. Common.

1594. Lecythea Baryi. *Berk.* "De Bary's rust."

Sori few; cystidia with an abrupt globose head; spores subglobose.—*Berk. Ann. N.H.* 755. *Cooke. M.F. p.* 207. *Berk. Outl. p.* 334. *Epitea. de Bary Brand t.* 4, *f.* 4.

On leaves of *Brachypodium pennatum.* Rare. Gopsal.

1595. Lecythea valerianæ. *Berk.* "Valerian Rust."

Spots yellowish; sori subrotund, small, confluent, sometimes circinating; epidermis at length bursting; spores reddish-brown subglobose, or clavate, shortly pedicellate.—*Lev. Ann. Sc. Nat. Cooke M.F. p.* 207. *Cooke exs. no.* 63. *Berk. Outl. p.* 334. *Cooke L. F. no.* 32. *Uredo valerianæ. D. C. Fl. Fr.* v. *p.* 68. *Berk. exs. no.* 349. *Ann. N.H. no.* 474.

On *Valeriana officinalis.* August.

c. Spores concatenate—(*Podosporium.* Lev.)

1596. Lecythea lini. *Lev.* "Flax Rust."

Spots yellowish; sori subrotund, scattered, surrounded by the ruptured epidermis; spores globose or pyriform, sometimes pedicellate.—*Lev. Ann. Sc. Nat. Cooke M.F. t.* 8, *f.* 165-167. *Berk. Outl. p.* 334. *Uredo lini. D.C. Fl. Fr.* ii. *p.* 234. *Moug. exs. no.* 90. *Grev. t.* 31. *Eng. Fl.* v. *p.* 384. *Desm. exs. no.* 675. *Berk. exs. no.* 118.

On *Linum catharticum.* July.

Lecythea ruborum. *Lev.* See *Phragmidium bulbosum.*

LECYTHEA ROSÆ. *Lev.* See *Phragmidium mucronatum.*
LECYTHEA POPULINA. *Lev.* See *Melampsora populina.*
LECYTHEA EUPHORBIÆ. *Lev.* See *Melampsora euphorbiæ.*
LECYTHEA EPITEA. *Lev.* See *Melampsora salicina.*
LECYTHEA GYROSA. *Lev.* See *Phragmidium gracile.*
LECYTHEA CAPREARUM. *Lev.* See *Melampsora salicina.*

Order XVII. ÆCIDIACEI.

Peridium distinctly cellular.—*Berk. Outl. p.* 336.

Peridium single.
  Elongated.
    Separating in threads . . . . . *Rœstelia.*
    Rupturing irregularly . . . . . *Peridermium.*
  Abbreviated, or semi-immersed . . . . . *Æcidium.*
  Immersed . . . . . *Endophyllum.*
Peridium double, sessile . . . . . *Graphiola.*

Gen. **182.** **RŒSTELIA,** Reb.

Fig. 218.

Peridium elongated, at length opening by lateral fissures, or a terminal lacerated mouth. *Spermogones* on the opposite surface, on the same or on different leaves. *(Fig.* 218.*)*

1597. Rœstelia cancellata. *Reb.* "Pear-leaf Rœstelia."

SPERMOGONES. Spots yellow or orange, with bluntish conical projections, which are at length blackish; spermatia minute, oozing out at the apex, like an orange jelly.—*Myxosporium colliculosum. Berk. Outl. p.* 325. *Sow. t.* 409.

PROTOSPORES. Spots yellow, then red, prominent; peridia split to the base into lacinæ, which remain united at the apex, on the same or on different leaves as the *Spermogones.—Reb. Fl. Neom. p.* 330. *Cooke M.F. t.* 2, *f.* 20, 21. *Seem. Journ.* ii. *p.* 33. *Cooke exs. no.* 332. *Fckl. exs. no.* 283. *Berk. exs. no.* 58. *Kunze.*

exs. no. 84. *Sow. t.* 410. *Eng. Fl.* v. *p.* 373. *Moug. exs. no.* 184. *Kl. exs. no.* 97. *Gard. Chron.* 1862, *p.* 689.

On pear leaves. Autumn. [Maine, U.S.]

The *Podisoma sabinæ* is related to this plant, according to Œrsted, as one of its forms—see no. 1517. ante.

1598. Rœstelia cornuta. *Tul.* "Horn-like Rœstelia."

Spermogones. Spots rusty-brown, usually distinct from the tufts of peridia; spermatia white.

Protospores. Spots rusty-brown; peridia cylindrical, slightly curved, yellowish-brown; spores greyish, at length brown.—*Cooke M.F. t.* 2, *f.* 18, 19. *Cooke exs. no.* 1. *Fckl. exs. no.* 284. *Seem. Journ.* ii. *p.* 33. *Kl. exs. no.* 96. *Æcid, cornutum. Eng. Fl.* v. *p.* 373. *Sow. t.* 319. *Grev. t.* 180. *Moug. exs. no.* 183.

On the under surface of the leaves of the mountain ash *(Pyrus aucuparia.)* August. Not common. (*Fig.* 218, *enlarged.*)

1599. Rœstelia lacerata. *Tul.* "Fringed Rœstelia."

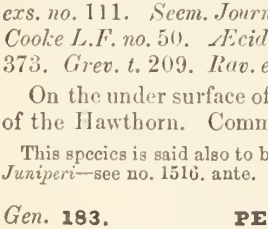
Spermogones.

Protospores. Peridia clustered in tufts, brown, elongated, splitting to the base in segments; spores light brown.—*Cooke M.F. t.* 2, *f.* 22-26. *Cooke es. no.* 2. *Fckl. exs. no.* 286. *Berk. exs. no.* 111. *Seem. Journ.* ii. *p.* 33. *Gard. Chron.* 1861, *p.* 336. *Cooke L.F. no.* 50. *Æcid. laceratum. Sow. t.* 318. *Eng. Fl.* v. *p.* 373. *Grev. t.* 209. *Rav. exs.* v. *no.* 96.

On the under surface of the leaves, and on the petioles and fruit of the Hawthorn. Common. May to July. [New York, &c.]

This species is said also to be in some manner associated with *Podisoma Juniperi*—see no. 1516. ante.

Gen. **183. PERIDERMIUM,** Chev.



b. Fig. 219. *a.*

Peridium elongated, at length bursting irregularly. *Spermogonia* scattered, conspicuous.—(*Fig.* 219.)

1600. Peridermium pini. *Chev.* "Scotch fir Peridermium."

Spermogones. Vernal or autumnal, or both; spermatia large, white.

Protospores. Peridia oblong, scattered, large; spores orange, abundant.—*Cooke M.F. t.* 2, *f.* 27, 28. *Seem. Journ.* ii. *p.* 34. *Fckl. exs. no.* 288. *Æcidium pini. Eng. Fl.* v. *p.* 374. *Grev. t.* 7. *Moug. exs. no.* 186. *Rav. exs.* i. *no.* 93.

On leaves and young branches of Scoth fir. Summer.

(*Fig.* 219, *a.* nat size, *b.* magnified.)

1601. Peridermium elatinum. *Lk.* "Silver Fir Peridermium."

Spermogones.

Protospores. Simple, immersed; peridia elliptic, pallid; sporidia orange.—*Kze. exs. no.* 141. *Seem. Journ.* ii. *p.* 34. *Cooke M.F. p.* 190. *Fckl. exs. no.* 290.

On silver fir, altering both foliage and ramification. Not common.

1602. Peridermium columnare. *A. & S.* "Columnar Peridermium."

Spermogones.

Protospores. Simple, slender, naked, cylindrical, elongated, lacerated at the apex, white; spores orange.—*A. & S. Consp.* 121, *t.* 5, *f.* 4. *Kze. exs. no.* 10. *Cooke M. F. 2nd. ed. p.* 223. *Cooke exs. no.* 214.

On *Picea*. Sept. Near Torquay.

Gen. **184.** **ÆCIDIUM,** Pers.

Fig. 220.

Peridium seldom elongated, opening by a terminal mouth, surrounded by a fringe of recurved teeth, or when short bursting irregularly. Spores disposed in chains. Spermogonia on the same or the opposite surface, clustered or scattered, central or intermixed.—(*Fig.* 220.)

Sect. I.—Peridia scattered (not collected in tufts or clusters).

1603. Æcidium leucospermum. *D.C.* "White-spored Cluster Cups."

Spermogones.

Protospores. Spots yellowish; peridia scattered, often covering the whole under surface; spores white, ovate.—*D.C. Fl. Fr. p.* 239. *Berk. exs. no.* 226. *Seem. Journ.* ii. *p.* 34. *Cooke M.F. t.* 1, *f.* 4-6. *Cooke exs. no.* 3. *Fckl. exs. no.* 1930. *Eng. Fl.* v. *p.* 371. *Moug. exs. no.* 185. *Baxt. exs. no.* 89. *Berk. exs. no.* 226. *Lycoperdon anemones. Pult. Linn. Trans.* ii. *p.* 311.

On both sides of leaves of *Anemone nemorosa.* June. Common.

1604. Æcidium quadrifidum. *D.C.* "Four-lobed Cluster Cups."

Spermogones.

Protospores. Spots brownish; peridia scattered, occupying almost the entire under surface; spores brown, subglobose.—*D.C. Fl. Fr.* vi. *p.* 90. *Eng. Fl.* v. *p.* 371. *Seem. Journ.* ii. *p.* 34. *Cooke M.F. p.* 190. *Cooke exs. no.* 101. *Berk. exs. no.* 227.

On the under surface of leaves of *Anemone,* in gardens. April. May.

The lobes at the mouth of the peridium are not constantly four.

1605. Æcidium albescens. *Grev.* "Moschatel Cluster Cups."

Spermogones.

Protospores. Leaf blistered, whitish, scattered; peridia white, split into a few large teeth; spores yellowish-white.—*Grev. Fl. ed. p.* 444. *Eng. Fl.* v. *p.* 372. *Desm. exs. no.* 555. *Seem. Journ.* ii. *p.* 34. *Cooke M.F. p.* 190.

On leaves and petioles of *Adoxa moschatellina.* April.

1606. Æcidium epilobii. *D.C.* "Willow-herb Cluster Cups."

Spermogones.

Protospores. Spots obliterated; peridia scattered, at length oval, wider above; spores orange, at length brown.—*D.C. Fl. Fr.* ii. *p.* 238. *Eng. Fl.* v. *p.* 372. *Seem Journ.* ii. *p.* 35. *Cooke M.F. p.* 190. *Cooke exs. no.* 4. *Fckl. exs. no.* 1927. *Berk. exs. no.* 348. *Cooke L.F. no.* 52.

On the under surface of leaves of *Epilobium hirsutum, E. montanum, and E. palustre.* June.—Aug. Common. [Cincinnati.]

1607. Æcidium thesii. *Desm.* "Bastard-toad flax Cluster Cups."

Spermogones.

Protospores. Spots obliterated; peridia scattered or biseriate, short, cylindrical, margin irregularly toothed, erect; spores yellowish, then dingy.—*Cooke M.F. t.* 3. *f.* 50, 51. *B. & Br. Ann. N.H. no.* 1048. *Berk. exs. no.* 318.

On *Thesium humifusum.* May.—Oct.

1608. Æcidium soldanellæ. *Hornsh.* "Soldanella Cluster Cups."

Spermogones.

Protospores. Spots obliterated; peridia solitary, scattered over the inferior surface; spores orange.—*Moug. exs. no. Eng. Fl.* v. *p.* 369. *Seem. Journ.* ii. *p.* 35. *Cooke M.F. p.* 191.

On leaves of *Soldanella alpina.* Botanic Garden, Glasgow.

1609. Æcidium tragopogonis. *Pers.* "Goat's-beard Cluster Cups."

Spermogones.

Protospores. Spots obliterated; peridia scattered, torn, wider above; spores orange, at length black.—*Pers. Syn. p.* 211. *Eng. Fl.* v. *p.* 370. *Sow. t.* 397, *f.* 2. *Moug. exs. no.* 388. *Seem. Journ.* ii. *p.* 35. *Cooke M.F. t.* i. *f.* 1-3. *Cooke exs. no.* 5. *Cooke L.F. no.* 51.

On stems, leaves and involucres of goat's-beard. May. June. Common.

1610. Æcidium euphorbiæ. *Pers.* "Spurge Cluster Cups."

Spermogones. Preceding the peridia, on the same or different leaves.

Protospores. Spots obliterated, leaf thickened; peridia scattered or crowded, distinct; spores orange.—*Pers. Syn. p.* 211. *Eng. Fl.* v. *p.* 374. *Moug. exs. no.* 87. *Seem. Journ.* ii. *p.* 35. *Cooke M.F. p.* 191. *Cooke exs. no.* 6. *Fckl. exs. no.* 279. *Berk. exs. no.* 229.

On the under surface of leaves of spurge. May. June. Common. [United States.]

1611. Æcidium dracontii. *Schwein.* "Arum Cluster Cups."

Spermogones.

Protospores. Spots pallid, extensively scattered over the leaves, sometimes nearly covering them; peridia large, scattered, abundant, disposed without order on the spots; spores orange. *Schwz. Trans. Am. Phil. Soc.* 1834. *Scem. Journ.* ii. *p.* 41. *Cooke M.F. p.* 194.

On leaves of *Arum triphyllum* in gardens. Rare.
[United States.]

Dr. Curtis refers this to *Æcidium ari. B.* but we think erroneously.

Sect. 2. Peridia in tufts or clusters.

a. Elongatæ.

1612. Æcidium berberidis. *Pers.* "Berberry Cluster Cups."

Spermogones.

Protospores. Spots roundish, bright red; subiculum thickened; peridia in subrotund or oval patches, often elongated; spores orange.—*Pers. Syn. p.* 209. *Eng. Fl.* v. *p.* 372. *Sow. t.* 397, *f.* 5. *Moug. exs. no.* 86. *Grev. t.* 97. *Kl. exs. no.* 95. *Scem. Journ.* ii. *p.* 35. *Cooke M.F. t.* 1, *f.* 7-9. *Kze. exs. no.* 14. *Fckl. exs. no.* 278.

On leaves, peduncles, and fruit of berberry. May.—July. Common. [United States.]

(Fig. 220, *enlarged.)*

Said to be a condition of the corn mildew—*Puccinia graminis*—see no. 1462. ante.

1613. Æcidium crassum. *Pers.* "Buckthorn Cluster Cups."

Spermogones.

Protospores. Spots yellow-brown, subiculum thickened; peridia crowded into a roundish heap, at first globose, yellow, at length open; spores orange.—*Pers. Syn. p.* 208. *Eng. Fl.* v. *p.* 373. *Pers. Ic. & Desc. t.* 10, *f.* 1, 2. *Moug. exs. no.* 89. *Seem. Journ.* ii. *p.* 36. *Cooke M.F. p.* 191. *Cooke exs. no.* 7. *Fckl. exs. no.* 277. *Berk. exs. no.* 110. *Cooke L.F. no.* 53. *Æcid. rhamni. Pers. Obs. t.* 2, *f.* 4.

On *Rhamnus catharticus* and *R. frangula.* Common.
[United States.]

var. β. **phillyreæ.** Spots obliterated.—*Æcidium phillyreæ. D.C. Fl. Fr.* vi. *p.* 96.

On leaves and young shoots of *Phillyrea.* Chichester.

var. γ. **periclymeni.** *D.C.* Spots variegated, yellow and brown.—*Æcidium periclymeni. D.C. Fl. Fr.* ii. *p.* 597. *Eng. Fl.* v. *p.* 370. *Seem. Journ.* ii. *p.* 36. *Cooke M.F. p.* 191. *Cooke exs. no.* 102. *Fckl. exs. no.* 276. *Cooke L.F. no.* 54.

On leaves of honeysuckle. June.—August.

β. Poculiformæ.

1614. Æcidium calthæ. *Grev.* "Marsh Marigold Cluster Cups."

Spermogones.

Protospores. Aggregate; peridia somewhat campanulate, with numerous minute marginal teeth; spores bright orange, subglobose or oval.—*Grev. Fl. Ed. p.* 446. *Eng. Fl.* v. *p.* 371. *Seem. Journ.* ii. *p.* 36. *Cooke M.F. p.* 191.

On leaves and petioles of *Caltha palustris.* Spring. Rare.

Margin of peridia pale and brittle.—*Grev.*

1615. Æcidium ranunculacearum. *D.C.* "Crowfoot Cluster Cup."

Spermogones. Preceding the peridia, or simultaneous, and occupying the centre of the clusters; spermatia minute.

Protospores. Spots obliterated; subiculum thickened; peridia in irregular heaps, densely crowded together; spores orange.—*D.C. Fl. Fr.* vi. *p.* 97. *Sow. t.* 397, *f.* 2. *Seem. Journ.* ii. *p.* 36. *Cooke M.F. t.* 2, *f.* 12, 14. *Cooke exs. no.* 8. *Fckl. exs. no.* 263-265. *Cooke L.F. no.* 55.

On leaves of various *Ranunculaceæ.* Spring. Common. [Mid. Carolina.]

var. α. **aquilegiæ.** Clusters small, scattered.—*Æcid. aquilegiæ. Pers. Ic. Pict.* iv. *t.* 23, *f.* 4.

On leaves of columbine. Shere.

var. β. **clematidis.** Spots brownish.—*D.C. Fl. Fr.* ii. *p.* 243. *Rabh. F.E. no.* 284.

On leaves, &c., of *Clematis vitalba.* [Low. & Mid. Carolina.]

var. γ. **thalictri.** *Grev.* Clusters roundish; peridia oblong. —*Fckl. exs. no.* 265. *Æcidium thalictri. Grev. t.* 4. *Eng. Fl.* v. *p.* 371. *Seem. Journ.* ii. *p.* 35. *Cooke M.F. p.* 191.

On leaves of *Thalictrum minus, alpinum,* &c.

The form on leaves of *Ranunculus ficaria* is one of the earliest of spring fungi in making its appearance.

1616. Æcidium galii. *Pers.* "Bed-straw Cluster Cups."

Spermogones?

Protospores. Spots linear or oblong, obscurely brown; peridia scattered, rarely aggregate, dentate, whitish; spores egg-yellow.—*Pers. Syn. p.* 207. *Berk. Ann. N.H. no.* 490. *Seem. Journ.* ii. *p.* 37. *Cooke M.F. t.* 2, *f.* 15-17. *Cooke exs. no.* 9. *Fckl. exs. no.* 280.

On leaves of *Galium verum* and *G. mollugo.*

1617. Æcidium bunii. *D.C.* "Pig-nut Cluster Cups."

Spermogones?

Protospores. Spots obliterated; subiculum thickened; peridia in irregular subrotund or oval heaps; spores orange.—*D.C. Fl. Fr.* vi. *p.* 96. *Eng. Fl.* v. *p.* 370. *Seem. Journ.* ii. *p.* 37. *Cooke M.F. p.* 192. *Fckl. exs. no.* 1928.

On *Bunium bulbocastanum* and *Pimpinella saxifraga.* Spring.

var. β. **poterii.** *Cooke.* Peridia circinating or scattered. *Æcidium poterii. Cooke Seem. Journ.* ii. *p.* 39, *t.* 14. *f.* 3. *Cooke M.F. p.* 193.

On leaves and petioles of *Poterium sanguisorba.* May. June. Darenth.

1618. Æcidium valerianacearum. *Duby.* "Valerian Cluster Cups."

Spermogones?

Protospores. Hypogenous, rarely cauline; spots on a thickened subcircular or oblong base; peridia scattered, more or less crowded, cup-shaped, tawny, margin erect, denticulate; spores dirty yellow.—*Duby. Syn. p.* 908. *Eng. Fl.* v. *p.* 370. *Seem. Journ.* ii. *p.* 37. *Cooke M. F. p.* 192. *Cooke exs. no.* 103. *Fckl. exs. no.* 273. *Cooke L.F. no.* 56.

On *Valeriana officinalis* and *V. dioica.*

1619. Æcidium asperifolii. *Pers.* "Borage Cluster Cups."

Spermogones ?

Protospores. Clusters subrotund, on a slightly thickened subiculum; peridia scattered; spores orange.—*Pers. Syn. p.* 208. *Berk. Ann. N.H. no.* 255. *Seem. Journ.* ii. *p.* 37. *Cooke M.F. p.* 192. *Cooke exs. no.* 325. *Fckl. exs. no.* 274.

On leaves of various *Boraginaceæ*. Summer.

The parts of the leaves on which it occurs are rendered concave on one side and convex on the other.

1620. Æcidium grossulariæ. *D.C.* "Gooseberry Cluster Cups."

Spermogones ?

Protospores. Spots yellow, bright red on the opposite side, with a yellow border; peridia crowded in roundish heaps, at length brown, and surrounded with a brown area; spores orange.—*D.C. Fl. Fr.* vi. *p.* 92. *Grev. t.* 62. *Eng. Fl* v. *p.* 372. *Moug. exs. no.* 287. *Seem. Journ.* ii. *p.* 37. *Cooke M.F. p.* 192. *Cooke exs. no.* 10.

On leaves and fruit of gooseberry and currant. May. June. Common. [Pennsylvania.]

Very variable in the frequency of its occurrence. Some seasons it is very common; in others scarce a specimen can be found.

1621. Æcidium urticæ. *D.C.* "Nettle Cluster Cups."

Spermogones ?

Protospores. Spots obliterated; subiculum thickened; peridia disposed in elongated or subrotund heaps, at first subglobose, then gaping; spores orange.—*D.C. Fl. Fr.* ii. *p.* 243. *Eng. Fl.* v. *p.* 374. *Moug. exs. no.* 389. *Desm. exs. no.* 676. *Seem. Journ.* ii. *p.* 37. *Cooke M.F. t.* 1, *f.* 10, 11. *Cooke exs. no.* 11. *Fckl. exs. no.* 281. *Berk. exs. no.* 112.

On leaves and stems of nettles, distorting them very much. June. Common. [Mid. Carolina.]

1622. Æcidium behenis. *D.C.* "Bladder-campion Cluster Cups."

Spermogones ?

Protospores. Spots yellow, brown on opposite side; peridia somewhat circinating, in subrotund heaps; spores brown.—*D.C. Fl. Fr.* vi. *p.* 94. *Eng. Fl.* v. *p.* 372. *Baxt. exs. no.* 90.

Seem. Journ. ii. *p.* 37. *Cooke M.F. p.* 192. *Fckl. exs. no.* 1542. *Berk. exs. no.* 340.

On Bladder Campion *(Silene inflata.)* Rare.

Some of the peridia are short and open, others larger and closed.

1623. Æcidium orobi. *D.C.* "Bitter-veteh Cluster Cups."

Spermogones.

Protospores.—Spots yellow, effused; peridia scattered, and disposed in small heaps; spores orange, at length white.—*D.C. Fl. Fr.* vi. *p.* 95. *Eng. Fl.* v. *p.* 374. *Seem. Journ.* ii. *p.* 38. *Cooke M.F. p.* 192. *Fckl. exs. no.* 267.

On stems and leaves of *Orobus tuberosus.* May.

β. Sub-immersæ.

1624. Æcidium compositarum. *Mart.* "Composite Cluster Cups."

Spermogones?

Protospores. Spots purplish, subrotund, confluent above; peridia crowded, in orbicular patches, or circinating, on the under surface; spores orange, oval.—*Mart. Erl. p.* 314. *Berk. exs. no.* 322. *Eng. Fl.* v. *p.* 370. *Seem. Journ.* ii. *p.* 38. *Cooke M. F. p.* 192.

On various *Compositæ.* [United States.]

var. a. **Taraxaci.** Grev. Clusters small, scattered.—*Æ. Taraxaci. Grev. Fl. Ed. p.* 444.

On leaves of the dandelion. June to July.

var. b. **Prenanthis.** Pers. Spots circular or irregular, purplish; subiculum incrassated.—*Æ. prenanthis. Pers. Syn. p.* 208.

On leaves of Hawkweed *(Hieracium paludosum).* Summer.

var. c. **Tussilaginis.** Pers. Clusters round, on a thickened base; peridia circinating.—*Æ. Tussilaginis. Pers. Syn.* 209. *Sow. t.* 397, *f.* 1. *Moug. exs. no.* 88. *Cooke exs. no.* 12. *Fckl. exs. no.* 270. *Cooke L.F. no.* 58.

On the under surface of leaves of Coltsfoot and Butterbur. Common. Autumn.

var. d. **Jacobææ.** Grev. Pustular, soon becoming agglomerated, numerous, depressed; peridia splitting into short, brittle, yellowish-white teeth.—*Æ. Jacobææ. Grev.*

On leaves of *Senecio Jacobæa* and *Sonchus arvensis*. June to August.

var. e. **Lapsani.** Purt. Spots purplish, irregular, confluent, on both sides of the leaves; peridia amphigenous, in irregular patches or scattered, not prominent, teeth numerous, minute, reflexed; spores yellow, oval.—*Æ. lapsani. Purt. M.S.S. Seem. Journ.* ii. *p.* 38, *t.* 14, *f.* 2. *Cooke exs. no.* 13, *Fckl. exs. no.* 271.

On both surfaces of the leaves of *Lapsana communis*. April.

var. f. **bellidis.** D.C. *Berk. exs. no.* 225. *Cooke L.F. no.* 57. *Cooke exs. no.* 327.

On leaves of common Daisy.

1625. Æcidium saniculæ. *Carm.* "Sanicle Cluster Cups."

Spermogones?

Protospores. Spots purplish, slightly incrassated, small, scattered, roundish; peridia in small circinate clusters, hypogenous, and on the petioles, at first hemispherical, at length open, margin with from 4 to 6 spreading lobes; spores yellowish, elliptical.—*Cooke Seem. Journ.* ii. *p.* 39, *t.* 14, *f.* 1. *Cooke M.F. p.* 192. *Cooke exs. no.* 14.

On leaves and petioles of *Sanicula Europæa*. May. June.

1626. Æcidium violæ. *Schum.* "Violet Cluster Cups."

Spermogones?

Protospores. Spots yellowish; peridia in irregular heaps, seriate and scattered; spores orange, at length brown.—*Grev. Fl. Ed. p.* 444. *Eng. Fl.* v. *p.* 372. *Seem. Journ.* ii. *p.* 39. *Cooke M.F. p.* 193. *Cooke exs. no.* 104. *Fckl. exs. no.* 275. *Berk. exs. no.* 228.

On leaves, petioles, and sepals of violets. May. June. Common. [United States.]

1627. Æcidium geranii. *D.C.* "Cranesbill Cluster Cups."

Spermogones?

Protospores. Spots yellow and purple; peridia in circinating clusters; spores yellow, at length brown.—*D.C. Fl. Fr.* vi. *p.* 93. *Eng. Fl.* v. *p.* 371. *Seem. Journ.* ii. *p.* 40. *Cooke M.F. p.* 193. *Cooke exs. no.* 107.

On the under surface of leaves of *Geranium pratense* and *G. dissectum*. [S. Carolina.]

1628. Æcidium menthæ. *D.C.* "Mint Cluster Cups."

Spermogones ?

Protospores. Spots obliterated; subiculum thickened; peridia scattered, emersed, or aggregate and immersed; spores orange, elliptic.—*D.C. Fl. Fr.* vi. *p.* 95. *Eng.Fl.* v. *p.* 370. *Seem. Journ.* ii. *p.* 40. *Cooke M.F. p.* 193.

On various mints.

1629. Æcidium scrophulariæ. *D.C.* "Figwort Cluster Cups."

Spermogones ?

Protospores. Spots yellowish; peridia in roundish circinate clusters (rarely scattered) on the under surface; spores whitish, becoming tawny.—*D.C. Fl. Fr.* vi. *p.* 91. *Ayres. exs. no.* 21. *Seem. Journ.* ii. *p.* 40. *Cooke M.F. p.* 193. *Cooke exs. no.* 209.

On the leaves of *Scrophularia aquatica.* June.

1630. Æcidium pedicularis. *Lobosch.* "Red-rattle Cluster Cups."

Spermogones ?

Protospores. Spots obliterated; subiculum thickened; peridia thickly and irregularly clustered, sub-immersed; spores dirty, pallid orange.—*Lk. Sp.* ii. *p.* 47. *Berk. Ann. N.H. no.* 254. *Cooke M.F. p.* 194. *Lob. Act. Soc. Mosc.* v. 76, *t.* 5, *f.* 1. *Seem. Journ.* ii. *p.* 40. *Cooke exs. no.* 105.

On *Pedicularis palustris.* Sept.

1631. Æcidium primulæ. *D.C.* "Primrose Cluster Cups."

Spermogones ?

Protospores. Spots obliterated; peridia solitary, scattered, and crowded, hypogenous; spores whitish-yellow.—*D.C. Fl. Fr.* vi. *p.* 90. *Eng. Fl.* v. *p.* 369. *Seem. Journ.* ii. *p.* 40. *Cooke M.F. p.* 194. *Cooke exs. no.* 296. *Berk. exs. no.* 341.

On the under surface of leaves of primroses. May.

1632. Æcidium rubellum. *Pers.* "Dock Cluster Cups."

Spermogones ?

Protospores. Spots purple; peridia circinating; centre free; spores yellowish-white.—*Eng. Fl.* v. *p.* 369. *Moug. exs. no.* 286. *Sow. t.* 405. *Purt.* iii. *t.* 26. *Seem. Journ.* ii. *p.* 40. *Cooke*

M.F. p. 194. *Cooke exs. no.* 15. *Fckl. exs. no.* 1664. *Cooke L.F. no.* 59.

On leaves of dock, rhubarb, and sorrel. May. June. [United States.]

var. β. **aviculare.** *Kunze.* Without definite spots.

On leaves of *Polygonum aviculare.* Winchester.

We have seen only one specimen of this variety, received from Mr. F. J. Warner, and from that would be disposed to regard it as a distinct species, but have not done so on the faith of a single specimen.

1633. Æcidium ari. *Berk.* Wake-robin Cluster Cups."

Spermogones?

Protospores. Spots round, confluent; peridia circinating, not crowded, central ones abortive.—*Eng. Fl.* v. *p.* 369. *Seem. Journ.* ii. *p.* 41. *Cooke M.F. p.* 194.

On leaves of *Arum maculatum.* June. July. Rare. [United States.]

1634. Æcidium allii. *Grev.* "Garlic Cluster Cups."

Spermogones. Preceding the peridia on the same or on different leaves; spermatia minute, white.

Protospores. Spots pale; peridia circinating, not contiguous; spores yellowish.—*Grev. Fl. Ed. p.* 447. *Eng. Fl.* v. *p.* 369. *Seem. Journ.* ii. *p.* 41. *Cooke M.F. p.* 194. *Cooke exs. no.* 16.

On leaves of *Allium ursinum.* June. July.

1635. Æcidium orchidearum. *Fiedl.* "Orchis Cluster Cup."

Spermogones. Sometimes occupying the centre of the tufts.

Protospores. Spots large, pallid, orbicular or elongated; peridia circinating, semi-immersed; spores golden-yellow.—*Cooke M.F. 2d. ed. p.* 223. *Cooke exs. no.* 106. *Kl. exs. no.* 1690.

On *Orchis latifolia.* June.

Gen. **185. ENDOPHYLLUM,** Lev.

Peridium enclosed within the substance of the leaf, bursting irregularly.

1636. Endophyllum sempervivi. *Lev.* "Houseleek Endophyllum."

Peridia immersed, elliptic or roundish; spores ochraceous, becoming brownish.—*Uredo sempervivi. A. & S. p.* 126. *Berk. Ann. N.H. no.* 476. *Seem. Journ.* ii. *p.* 41. *Cooke M.F. p.* 194.

On leaves of houseleek. Rare. Warwickshire.

Gen. **186. GRAPHIOLA,** Poit.

Fig. 221.

Peridium sessile, ovate, double, exterior compact, coriaceous; interior membranaceous, incised, longer than the exterior, giving rise to fascicles of erect, long, simple threads; spores copious, minute, globose.—*Corda. Anl. p.* 74. (*Fig.* 221.)

1637. Graphiola phœnicis. *Poit.* "Date Palm Graphiola."

Outer peridium hard, blackish; inner peridium membranaceous, fugitive; spores yellow.—*Poiteau. Ann. des Sc. Nat.* 1824, *p.* 473, *t.* 26, *f.* 2. *Ann. N.H. no.* 1049. *Chev. Fl. Par. t.* 2, *f.* 1. *Bail. t.* 18. *Corda. Anl. t. C. f.* 26, *no.* 5-8. *Desm. exs. no.* 436. *Rav. exs.* iv. *no.* 72.

On palm leaves in conservatories. [Texas.]

(*Fig.* 221.)

FAMILY IV. HYPHOMYCETES.

Filamentous. Fertile threads naked, for the most part free, especially above, or loosely compacted, simple or branched, bearing the spores at their apices, rarely more closely packed, so as to form a distinct common stem.—*Berk. Outl. p.* 337.

Fertile threads compacted, sometimes cellular
  Stem or stroma compound
    Spores dry, volatile . . . . *Isariacei.*
    Mass of spores moist, diffluent . . *Stilbacei.*
Fertile threads free or anastomosing
  Fertile threads dark, carbonized
    Spores mostly compound . . . *Dematiei.*
  Fertile threads not carbonized
    Very distinct
      Spores mostly simple . . *Mucedines.*
    Scarcely distinct from mycelium
      Spores profuse . . . . *Sepedoniei.*

Order XVIII. ISARIACEI.

Threads more or less compacted, plants assuming hymenomycetous forms.—*Berk. Outl. p.* 338.

Receptacle elongated. Tips free
  Floccose . . . . . *Isaria.*
  Dilated above . . . . . *Anthina.*
Receptacle branched
  Subgelatinous . . . . . *Ceratium.*
Receptacle clavate
  Dusted with the spores . . . . . *Pachnocybe.*

Some of the species formerly included in this order are now known to be conidiiferous states of higher forms. Many others are suspected.

Gen. **187.** **ISARIA,** Fr.

Fig. 222.

Receptacle elongated, floccose, without any distinct heads. Tips of threads only free.—*Berk. Outl. p.* 338. (*Fig.* 222.)

1638. Isaria felina. *Fr.* "Cat's Isaria."

Cæspitose, elongated, filiform, branched, white, internally solid, filamentose; sporiferous stratum lax, farinaceous.—*Fr. S.M.* iii. *p.* 271. *Chev. Jour. Ph.* 1822, *t.* 1, *f.* 5. *B. & Br. Ann. N.H. no.* 1050.

On cat's dung in cellars. Jan. London.

The specimens found were mixed with *Mucor phycomyces.*

Isaria farinosa. Fr. is a condition of *Torrubia militaris.* Tul. (*Fig.* 222.)

1639. Isaria arachnophila. *Ditm.* "Spider Isaria."

Sub-cæspitose, clavate, simple, white; generally pubescent or pulverulent, conidia in moniliform threads.—*Fr. S.M.* iii. *p.* 273. *Sturm. t.* 55. *Berk. Ann. N.H. no.* 117. *Bisch. f.* 3769.

On dead spiders. Colleyweston.

This is not an autonomous species, but the conidia of some *Torrubia.*

1640. Isaria brachiata. *Schum.* "Branched Isaria."

Gregarious, rigid, becoming smooth at the base, very much branched; branches slender, patent, straight, white.—*Fr. S.M.* iii. *p.* 279. *Batsch. f.* 163. *Berk. Mag. Zool. & Bot. no.* 30. *Fl. Dan. t.* 2280, *f.* 3. *Kl. exs. no.* 1426. *Fckl. exs. no.* 169.

On dead herbaceous stems. March. [Mid. Carolina.]

1641. Isaria citrina. *P.* "Lemon-coloured Isaria."

Gregarious, very much branched, soft, everywhere pilose, lemon-coloured, whitish at the tips.—*Fr. S.M.* iii. *p.* 279. *Berk. Mag. Zool. & Bot. no.* 31. *Pers. Ic. & Des. t.* 3, *f.* 1. *Sturm. t.* 57. *Corda. Anl. t.* 9, *f.* 71, *no.* 5-7. *Bisch. f.* 3786. *Pay. f.* 351.

On decaying fungi. Aug.—Nov. [Mid. Carolina.]

1642. Isaria intricata. *Fr.* "Intricate Isaria."

Cæspitose, capillary, branched, white; branches few, erect, intricate, villous; apices of the threads monosporous.—*Fr. S.M.* iii. *p.* 278. *Berk. Ann. N.H. no.* 118.

On decaying fungi. Autumn.

1643. Isaria Friesii. *Mont.* "Fries's Isaria."

Small, fasciculate, erumpent, white, villous, flocci bearing at their tips a minute, oblong, hyaline spore.—*Mont. Ann. Sc. Nat. Ser.* ii.-vi. *p.* 28, *vol.* v. *t.* 12. *f.* 3. *Berk. Ann. N.H. no.* 491.

On dead twigs.

Sometimes pale grey, sometimes fawn coloured. Not more than a line in length.

1644. Isaria puberula. *Berk.* "Dahlia flower Isaria."

Minute, reddish; stem straight, branches few and simple; apices clavate.—*Berk. Ann. N.H. no.* 221, *t.* 12, *f.* 12.

On dead flowers of *Dahlia*.

About 1 line high; stem straight, slender, with generally three short obtuse branchlets given off from the same point, occasionally the stem is forked, but in this case I have not seen the second division branched. The whole plant is of a reddish-gray hue, and is mealy, with little granules and flocci. —*M.J.B.*

Gen. **188.** **ANTHINA,** Fr.

Fig. 223.

Receptacle elongated, vertical, confluent with the stem, dilated above. Tips of threads only free.—*Fr. S.M.* iii. *p.* 281. *Berk. Outl. p.* 338. (*Fig.* 223.)

1645. Anthina flammea. *Fr.* "Yellow Anthina.

Attenuated downwards, smooth, blood-red, inclining to saffron-yellow, dilated above, plumose, yellow.—*Fr. S.M.* iii. *p.* 283. *Eng. Fl.* v. *p.* 329. *Berk. Ann. N.H. no.* 119. *Berk. Outl. t.* 21, *f.* 3. *Roth. t.* 3, *f.* 1. *Jungh. Linn.* 1830, *t.* 7, *f.* 4. *Clavaria miniata, Purt. t.* 18. *Bisch. f.* 3772. *Fckl. exs. no.* 1659. *Berk. exs. no.* 206.

On fallen beech leaves. Autumn. (*Fig.* 223.)

Gen. **189.** **CERATIUM**, A. & S.

Fig. 224.

Receptacle branched, cylindrical, membranous, reticulated, sub-gelatinous, clothed with short fertile flocci, one in the centre of each reticulation.—*Fr. S.M.* iii. *p.* 293. *Berk. Outl. p.* 338. *Eng. Fl.* v. *p.* 329. (*Fig.* 224.)

1646. Ceratium hydnoides. *A. & S.* "Chalky Ceratium."

Aggregated, clavulæ subdiscrete, resembling prickles, at length chalk-white.—*Fr. S.M.* iii. *p.* 294. *Mich. t.* 92, *f.* 2. *Eng. Fl.* v. *p.* 329. *Bisch. f.* 3770. *Corda. Anl. t.* 9, *f.* 71, *no.* 1-4. *Kl. exs. no.* 572. *Fckl. exs. no.* 170. *Fl. Dan. t.* 718. *f.* 2. *Jacq. Misc.* i. *t.* 16. *Batsch. f.* 19. *Bull. t.* 415, *f.* 2. *A. & S. t.* 2. *f.* 7. *Link. Diss.* i. *t.* i. *f.* 38. *Nees. f.* 82. *Grev. t.* 168. *Clavaria byssoides, Sow. t.* 335. (*Fig.* 224.)

On rotten wood. [New England.]

Gen. **190.** **PACHNOCYBE**, Berk.

Fig. 225.

Stem solid, filiform below, clavate above, dusted with the minute spores.—*Berk. Outl. p.* 339. *Eng. Fl.* v. *p.* 333. (*Fig.* 225.)

1647. Pachnocybe subulata. *Berk.* "Awl-shaped Pachnocybe."

Stem brown-grey, subulate, slightly inerassated above; spores minute.—*Berk. Eng. Fl.* v. *p.* 333. *Sow. t.* 386, *f.* 5. *Nees. N.A. Cur.* ix. *t.* 5, *f.* 8. *Sturm. t.* 30. *Berk. exs. no.* 51.

On wood, sticks, &c. [Low. Carolina.]

Stem ½-2 lines or more high, brownish cinereous, truly subulate, or slightly thickened above, often fasciculate, occasionally breaking up longitudinally into flocci, the upper half clouded with the minute elliptic spores, which gradually fall away when the plant is placed in water.—*Eng. Fl.* (*Fig.* 225.)

1648. Pachnocybe grisea. *Berk.* "Grey Pachnocybe."

Densely gregarious, abbreviated; stem blackish; heads globose; spores grey.—*Berk. Eng. Fl.* v. *p.* 334. *Periconia discolor, Corda.* iii. *f.* 38. *B. & Br. Ann. N.H. no.* 495*.

On dead herbaceous stems.

Stem dark, nearly black, composed of fibres not a line high, head greyish, at length dusky, spores elliptic.—*Eng. Fl.*

1649. Pachnocybe acicula. *Berk.* "Needle-shaped Pachnocybe."

Gregarious; stem white or pallid; head sub-globose; spores elliptic.—*Eng. Fl.* v. *p.* 334.

On dead herbaceous stems.

Mycelium obsolete. Scarcely a line high, gregarious, but rather scattered, pure white, or with the slightest possible pallid tinge on the stem. Stem splitting up into fibres; receptacle sub-globose, covered with minute elliptic sporos.—*Eng. Fl.*

1650. Pachnocybe albida. *Berk.* "Whitish Pachnocybe."

Gregarious, pure white, clavato, spores large, oval (oval-oblong. *Fr.*)—*Eng. Fl.* v. *p.* 335. *Sporocybe albida, Fr. S.M.* iii. *p.* 14. *Berk. exs. no.* 52.

On rotten wood.

Not a line high. Gregarious, but rather scattered, white; stem marked with cells like the leaves of a *Hypnum*, filiform at the base, confluent with the strongly clavate apex, which is sometimes forked. Spores scattered on the receptacle, large, oval, transparent.—*Eng. Fl.*

Order XIX. STILBACEI.

Receptacle subglobose, often stipitate, clothed with mostly minute, diffluent, sub-gelatinous spores.—*Berk. Outl. p.* 339.

More or less stipitate	
Stem firm; head subglobose	
Spores minute, involved in gluten	*Stilbum.*
Spores fusiform	
Straight	*Atractium.*
Curved	*Microcera.*
Shortly, or scarcely stipitate	
Receptacle wart-like	
Spores minute, gelatinous	*Tubercularia.*
Sessile	
Receptacle bristly	
Spores gelatinous, diffluent	*Volutella.*
Receptacle discoid, immarginate	*Fusarium.*
Receptacle at length marginate	*Myrothecium.*
Receptacle subglobose, vesicular	*Epicoccum.*
Receptacle obscure	
Spores pulverulent	*Illosporium.*
Spores disposed in threads	*Ægerita.*

Gen. **191.** **STILBUM,** Tode.

Fig. 226.

Stem firm, elongated; head nearly globose; spores minute, or elongated, involved in gluten. *Berk. Outl. p.* 339. *Eng. Fl.* v. *p.* 329. (*Fig.* 226.)

1651. Stilbum tomentosum. *Schrad.* "Woolly Stilbum."

White, head globose; stems equal, tomentose, connected by a byssoid mycelium.—*Schrad. Journ.* 1799, *t.* 3, *f.* 1. *Fr. S.M.* iii. *p.* 301. *Grev. t.* 281. *Sturm. t.* 46. *Eng. Fl.* v. *p.* 330. *Bisch. f.* 3781.

On different species of *Trichia.* [Low. Carolina.]

1652. Stilbum aurantiacum. *Berk.* "Orange Stilbum."

Subfasciculate, orange; stem smooth, darker below, head sub-clavate; spores oblong, obtuse, subtruncate.—*Berk. Ann. N.H. no.* 223, *t.* 12, *f.* 14. *Bab. Abstr. Linn. Trans.* 1839.

On dead elm branches. Leicestershire.

Receptacle composed of sub-dichotomous filaments, crowned with abortive spores, which are about one third shorter than those which are perfect.

1653. Stilbum vaporarium. *B. & Br.* "Stove Stilbum."

Stems crowded, fasciculate, more or less connate at the base, cinereous; heads flesh coloured; spores oblong, large.—*Ann. N.H. no.* 493.

On wood in stoves. Kew Gardens.

This species can scarcely be regarded as indigenous; if so it is still too closely allied to *Stilbum fasciculatum*, from which it differs chiefly in the size of the spores.

1654. Stilbum fasciculatum. *B. & Br.* "Fasciculate Stilbum."

Stems flabellato-fasciculate, connate at the base, cinereous; heads flesh coloured; spores elliptic, small.—*Ann. N.H. no.* 492-1148*.

On decayed wood. Swansea.

Stems gray, fasciculate, connate at the base, so as to form little flabelliform tufts. Figured by Tulasne (*Carp.* iii. *t.* 14, *f.* 14-19.) as a state of his *Sporostilbe gracilipes*, and is therefore not autonomous.

1655. Stilbum fimetarium. *B. & Br.* "Dung Stilbum."

Small, of a pleasant red colour; head at first subconical, then nearly plane, somewhat angular.—*Ann. N.H. no.* 494. *Helotium fimetarium, Pers. Syn. p.* 678. *Leotia fimetaria, Pers. Obs.* ii. *t.* 5, *f.* 4, 5.

On dung. [S. Carolina.]

1656. Stilbum erythrocephalum. *Ditm.* "Rosy Stilbum."

Heads globoso-turbinate, rose-coloured; stem rather thick, pilose, whitish.—*Fr. S.M.* iii. *p.* 302. *Ditm. Sturm. t.* 45. *Eng. Fl.* v. *p.* 330. *Bisch. f.* 3780. *Kl. exs. no.* 1428.

On dung. King's Cliffe.

Scattered. Stem equal or attenuated upwards, at first blunt, without any head, and clothed with patent subfasciculate, or suberect down, with a few spreading flocci at the base, at length the apex swells, at first downy all over, but soon smooth, a little rugged, firm; spores elliptic.—*Eng. Fl.*

1657. Stilbum rigidum. *P.* "Rigid Stilbum."

Head subrotund, hyaline, then milk-white or cinereous; stem filiform, very long, black.—*Ust. Ann.* ii. *t.* 2, *f.* 2. *Sturm. t.* 59. *Berk. Mag. Zool. & Bot. no.* 32. *Fr. S.M.* iii. *p.* 302. *Fckl. exs. no.* 177.

On decayed wood. [Mid. Carolina.]

1658. Stilbum piliforme. *P.* "Hair-like Stilbum."

Head globose, hyaline; stems fasciculate, subulate, rigid, black.—*Fr. S.M.* iii. *p.* 303. *Nees. f.* 88. *Berk. Mag. Zool. & Bot. no.* 33. *Corda. Anl. t. B. f.* 20, *no.* 4-6. *Berk. exs. no.* 50.

On decayed wood. [Mid. Carolina.]

1659. Stilbum bicolor. *P.* "Two-coloured Stilbum."

Head subrotund, whitish; stem subulate, pallid, olive-brown below.—*Fr. S.M.* iii. *p.* 303. *Eng. Fl.* v. *p.* 330. *Fl. Dan. t.* 2280, *f.* 1.

On trunks of trees. Appin.

1660. Stilbum anomalum. *Berk.* "Anomalous Stilbum."

Head subglobose, yellow; stem black, yellow above, generally smooth, sometimes slightly floccose at the base; spores subfusiform.—*Berk. Mag. Zool. & Bot. no.* 34, *t.* 3, *f.* 9.

On dead twigs. King's Cliffe.

About half a line high; stem black, yellow above, generally smooth, but sometimes furnished with a few short flocci towards the base; head subglobose, yellow, when placed in water falling away into subfusiform spores, which rest upon a flat disc-like expansion of the upper part of the stem. Consistence not at all gelatinous. Resembling *S. xanthocephalum*, except in the form of the spores.—*M.J.B.*

1661. Stilbum nigrum. *Berk.* "Black Stilbum."

Stem short, dirty white, head ovate or subglobose, granulated; spores subcylindric.—*Eng. Fl.* v. *p.* 330.

On dead *Eriophorum*.

About ½ line high, stem rather more than half the whole height, head somewhat granulated, compact, and not the least pulverulent when dry, dissolving in water, and giving out a multitude of minute, subcylindric spores, which are spread over the depressed black apex of the stem.—*Eng. Fl.*

1662. Stilbum pellucidum. *Schrad.* "Pellucid Stilbum."

Head subrotund, whitish; stem equal, rigid, hyaline.—*Fr. S.M.* iii. *p.* 304. *Eng. Fl.* v. *p.* 330. *Fckl. exs. no.* 176.

On wood and decayed fungi.

1663. Stilbum turbinatum. *Tode.* "Top-shaped Stilbum."

Head globose or turbinate, pellucid, yellowish, as well as the subequal stem.—*Fr. S.M.* iii. *p.* 304. *Eng. Fl.* v. *p.* 330. *Tode. t.* 2, *f.* 2. *Pers. Ic. Pict. t.* 22, *f.* 1. *Bisch. f.* 3811. *Rabh. F.E. no.* 61.

On soft decayed wood. [Mid. Carolina.]

Head inversely pear-shaped, white; spores globose. Stem attenuated upwards, pale yellow, at length verdigris-green at the base, probably from the presence of some minute Algæ.—*Eng. Fl.*

1664. Stilbum vulgare. *Tode.* "Common Stilbum."

Gregarious, whitish, head globose; stem subequal, rather thick. —*Fr. S.M.* iii. *p.* 305. *Eng. Fl.* v. *p.* 330. *Tode. t.* 2, *f.* 16. *Sturm. t.* 58. *Kl. exs. no.* 1752. *Schnzl. t.* 12, *f.* 44, 45. *Corda.* i. *f.* 272.

On decaying wood, &c. [Mid. Carolina.]

"Head roundish, nearly white, semi-fluid, at length firmer and yellowish; stem rather thick, cylindrical;" always minute, but variable, the head at length pruinose from the globose white spores. (*Fig.* 226.)

Gen. **192.** **ATRACTIUM**, Fr.

Fig. 227.

Stem firm; head subglobose; spores fusiform, elongated.—*Berk. Outl. p.* 340. (*Fig.* 227.)

1665. Atractium flammeum. *B. & Rav.* "Flame-red Atractium."

Shortly sub-cylindrical, flame-red, white below, pruinose; spores curved, fusiform, hyaline, with six or more septa, on long sporophores.—*Ann. N.H. no.* 757. *Tul. Carp.* iii. *p.* 104, *t.* xiii. *f.* 12.

On the bark of willows. [S. Carolina.]

Scarcely ½ line high, head convex; spores ·003 in. long. The habit is just that of *Stilbum aurantiacum*. According to Tulasne this is the conidiophorous state of *Sphærostilbe flammea*. (*Fig.* 227.)

Gen. **193.** **MICROCERA**, Desm.

Fig. 228.

Veil persistent, membranaceo-floccose, then splitting above into laciniæ; receptacle clavate, fleshy, composed of nearly simple sporiferous threads; spores fusiform, arcuate.—*Desm. Ann. Sc. Nat.* (1848).x. *p.* 359. (*Fig.* 228.)

1666. **Microcera coccophila.** *Desm.* "Coccus Microcera."

Very minute, subcæspitose, conical, simple, rose-red, membrane of the base very thin, whitish, vaginate, connate; spores hyaline, elongated, acute at either end.—*Desm. Ann. Sc. Nat.* 1848, x. *p.* 359. *Exs. no.* 1750. *Rabh. exs. no.* 269. *Cooke exs. no.* 350. *Tul. F. Carp.* iii. *p.* 105.

Parasitic on *Cocci* on bark of trees.

Tulasne considers this to be the conidiophorous form of a species of *Nectria*. (*Fig.* 228.)

Gen. **194.** **VOLUTELLA**, Fr.

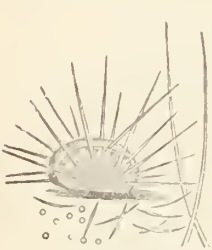


Fig. 229.

Receptacle fringed, or studded with long hyaline bristles; spores diffluent, gelatinous.—*Fr. S.M.* iii. *p.* 466. *Berk. Outl. p.* 340. (*Fig.* 229.)

1667. **Volutella ciliata.** *Fr.* "Fringed Volutella."

Substipitate, whitish, then rose coloured, circumference ciliated with erect bristles.—*Fr. S.M.* iii. *p.* 467. *Bisch. f.* 3827. *Psilonia rosea, Eng. Fl.* v. *p.* 353. *Berk. exs. no.* 56. *Ann. N.H. no.* 495.

On potatoes. Winter and spring. [Mid. Carolina.]

Spores elliptic or oblong, larger and slightly curved; bristles sharp-pointed, septate. There is a sort of stroma, probably formed from abortive bristles. —*M.J.B.*

1668. Volutella setosa. *Berk.* "Bristly Volutella."

Quite sessile, white, mass of spores surrounded by and mixed with erect elongated bristles.—*Berk. Outl. p.* 340. *Psilonia setosa, Eng. Fl.* v. *p.* 353. *Ægerita setosa, Grev. t.* 268, *f.* 2. *Fr. S.M.* iii. *p.* 220.

On wood, herbaceous stems, &c. Appin.

Spores globoso and fusiform. The bristles spring from the base and penetrate the whole mass. (*Fig.* 229.)

1669. Volutella hyacinthorum. *Berk.* "Hyacinth Volutella."

Very minute, white, very shortly but distinctly stipitate, mass of spores surrounded by bristles.—*Berk. Out. p.* 340. *Psilonia hyacinthorum, Eng. Fl.* v. *p.* 353.

On dead bulbs. King's Cliffe.

Volutella Buxi. *Berk. Outl.* is a state of *Nectria Rousseliana.*

1670. Volutella melaloma. *B. & Br.* "Orange Volutella."

Stroma orange, hairs black; spores shortly fusiform, slightly lunate, appendiculate.—*B. & Br. Ann. N.H. no.* 496, *t.* xi. *f.* 3.

On Carices.

Perfectly superficial. Stroma and spores bright orange, fringed with black articulated hairs. In company with *Neottiospora caricum.*

Gen. **195. TUBERCULARIA,** Tode.

Fig. 230.

Receptacle verrucæform, innate, clothed with a dense stratum of gelatinous, minute spores.—*Berk. Outl. p.* 340.

Probably none of the species are autonomous. (*Fig.* 230.)

1671. Tubercularia granulata. *P.* "Granulate Tubercularia."

Stratum of spores, rugose, dirty-red, at length brown, margin naked; spores subfusiform.—*Fr. S.M.* iii. *p.* 465. *Grev. t.* 187.

Fries. exs. no. 257. *Eng. Fl.* v. *p.* 354. *Bon. t.* ii. *f.* 222. *Bisch. f.* 3831. *Kl. exs.* 99, 1392.

On dead branches. [United States.]

(*Fig.* 230 *nat. size and magnified section.*)

1672. Tubercularia nigricans. *Lk.* "Blackish Tubercularia."

Stratum of spores, even, red, at length black, margin naked.—*Fr. S.M.* iii. *p.* 465, *Bull. t.* 455, *f.* 1. *Eng. Fl.* v. *p.* 354.

On trunks. [Mid. Carolina.]

It is very doubtful whether this and the preceding are any more than aberrant forms of *Tubercularia vulgaris*, and therefore only conidia of *Nectria*. See *Tulasne Carp.* iii. *p.* 79.

1673. Tubercularia persicina. *Ditm.* "Parasitic Tubercularia."

Sub-innate, white; stratum of spores even, convex, lilac.—*Fr. S.M.* iii. *p.* 466. *Sturm.* iii. *t.* 49. *Bisch. f.* 3833. *Kl. exs. no.* 1163. *Fckl. exs. no.* 1642.

On pustules of *Æcidia*. [Low. Carolina.]

Tubercularia vulgaris. *Tode, Eng. Fl.* v. *p.* 354 is only the conidiiferous condition of *Nectria cinnabarina*.

Gen. **196.** **FUSARIUM,** Link.

Fig. 231.

Receptacle discoid, innato-erumpent, immarginate, clothed with diffluent subgelatinous spores.—*Berk. Outl. p.* 341.

The majority of species included under this genus are probably conditions of higher forms. (*Fig.* 231.)

1674. Fusarium lateritium. *Nees.* "Brick-red Fusarium."

Hemispherical or irregular, soft, yellowish-red, stroma somewhat thickened, spores curved.—*Fr. S.M.* iii. *p.* 470. *Nees. f.* 26. *Berk. Ann. N.H. no.* 249. *Ann. Sc. Nat.* 1837, viii. *t.* 2, *f.* 7. *Bisch. f.* 3837. *Fckl. exs. no.* 210. *Berk. exs. no.* 262.

On dead twigs (willow, lime, &c.). [Low. Carolina.]

1675. Fusarium heteronema. *B. & Br.* "Pear Fusarium."

Flocci septate below, joints broad, inarticulate above, branched, often forked, slender; spores oblong, curved, uniseptate.—*Ann. N.H. no.* 1051, *t.* xiv. *f.* 9.

On decaying pears. Oct. Batheaston.

Resembling somewhat *Septosporium curvatum*, Casp. but not really closely allied. This species is often accompanied by the common orango *Fusarium*, which is known at once by its very different spores.—*B. & Br.*

(*Fig.* 231.)

1676. Fusarium heterosporium. *N.* "Rye Fusarium."

Effused, red, stroma of conidia expanded, perfect spores curved. —*Fr. S.M.* iii. *p.* 472. *Nees. N.A. Cur.* ix. *p.* 135. *Ann. N.H. no.* 955. *Fckl. exs. no.* 1068. *Bisch. f.* 3898. *Pringsh. Jahrb.* ii. *t.* 29, *f.* 20. *Kl. exs.* ii. *no.* 187.

On glumes and seeds of Rye. Near Arundel.

Most probably the stylospores of *Claviceps purpurea*, Tul.

Fusarium roseum. *Link.* See *Nectria pulicaris*, of which Tulasne states it is the conidia.

Fusarium tremelloides. *Grev.* is doubtless only a stylosporous condition of *Peziza fusarioides*..

Gen. **197. MYROTHECIUM,** Tode.

Fig. 232.

Receptacle at length marginate; spores diffluent, oblong, forming a flat or slightly convex dark-green stratum.—*Berk. Outl. p.* 341.

(*Fig.* 232.)

1677. Myrothecium roridum. *Tode.* "Dewy Myrothecium."

Disc turgid; spores cylindrical.—*Fr. S.M.* iii. *p.* 217. *Tode. t.* 5, *f.* 38. *Grev. t.* 140. *Eng. Fl.* v. *p.* 323. *Bisch. f.* 3685. *Fckl. exs. no.* 166.

On decaying plants. [Low. Carolina.] (*Fig.* 232.)

Gen. **198.** **EPICOCCUM**, Link.

Receptacle subglobose, vesicular, studded with large, somewhat stipitate spores.—*Berk. Outl. p.* 341. (*Fig.* 233.)

Fig. 233.

1678. Epicoccum neglectum. *Desm.* "Little Epicoccum."

Very minute, gregarious; spots none; stroma subglobose, purplish brown; spores numerous, spherical, reticulated, brown, areolæ darker, pedicel very short, conico-truncate, hyaline.—*B. & Br. Ann. N.H. no.* 500. *Desm. exs. no.* 540. *Desm. Ann. Sc. Nat.* (1842). xvii. *p.* 95.

On decaying plants. [Low. Carolina.]

Spores ('0005 in.) ·0125 m.m. long. (*Fig.* 233.)

1679. Epicoccum equiseti. *Berk.* "Horse-tail Epicoccum."

Linear, occupying the striæ of the stem; spores globose, minute, atro-sanguineous, smooth.—*Berk. Out. p.* 341. *Uredo equiseti, Eng. Fl.* v. *p.* 384. *Fckl. exs. no.* 237.

On *Equisetum limosum.* Fineshade, Norths.

Gen. **199.** **ILLOSPORIUM**, Mont.

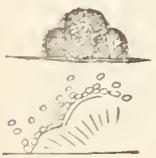


Fig. 234.

Receptacle obscure; spores irregular, falling away like meal.—*Berk. Outl. p.* 341. (*Fig.* 234.)

1680. Illosporium roseum. *Fr.* "Rosy Illosporium."

Heaped up in an irregular tubercle, soft, breaking to pieces, rose-coloured.—*Fr. S.M.* iii. *p.* 258. *Eng. Fl.* v. *p.* 328. *Grev. t.* 51. *Fl. Dan. t.* 1243. *Fckl. exs. no.* 241, *f.* 1. *Schnzl. t.* 14, *f.* 1-3. *Willk. f.* 40 *c. Rabh. F.E. no.* 72.

On the larger tree lichens, *Parmelia saxatilis*, &c. (*Fig.* 234.)

1681. Illosporium carneum. *Fr.* "Flesh-coloured Illosporium."

Gregarious, globular, free, soft, sub-pulverulent, fleshy-red. —*Fr. S.M.* iii. *p.* 259. *Berk. Ann. N.H. no.* 497. *Berk. exs. no.* 293. *Rabh. F.E. no.* 73.

On *Peltidea canina*. Apethorpe.

1682. Illosporium corallinum. *Roberge.* "Coralline Illosporium."

Gregarious, minute, rosy, globose, then cylindrical, somewhat branched, coralline; spores conglutinate, polymorphous, subhyaline.—*Desm. Ann. Sc. Nat.* (1848), x. *p.* 342. *B. & Br. Ann. N.H. no.* 498. *Desm. exs. no.* 1551. *I. coccineum, Corda.*

On *Borrera tenella*. Autumn and Winter.

1683. Illosporium coccineum. *Fr.* "Carmine Illosporium."

Crowded, minute, sphœrical, persistent, carmine red.—*Fr. S.M.* iii. *p.* 259. *B. & Br. Ann. N.H. no.* 499. *Fckl. exs. no.* 240.

On *Pertusaria communis*. [Low. Carolina.]

Gen. **200.** **ÆGERITA,** P.

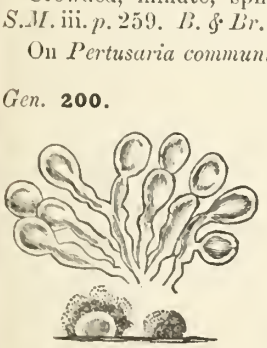


Fig. 235.

Receptacle obscure; spores irregular, disposed in short moniliform threads at the apices of flexuous, branched, radiating, compacted peduncles. — *Berk. Outl. p.* 342. *(Fig.* 235.*)*

1684. Ægerita candida. *P.* "White Ægerita."

Smooth, soon mealy, white; spores ovate-oblong.—*Fr. S.M.* iii. *p.* 220. *Eng. Fl.* v. *p.* 324. *Fckl. exs. no.* 163. *Grev. t.* 268, *f.* 1. *Bisch. f.* 3683. *Hoff. F.G.* ii. *t.* 9, *f.* 1. *B. & Br. Ann. N.H. no.* 823, *t.* 9, *f.* 7.

On damp decaying wood. [Low. & Mid. Carolina.]

Crowded, granule-like, globose, or hemispherical, of the size of a poppy seed, white, at first even, smooth, then minutely squamulose or mealy from the breaking up of the spores. "There is certainly no peridium, and the genus is typical of a compact *Oidium*." Spores (·0006-·0005 in.) ·015—·0125 m.m. long. (*Fig.* 235.)

Order XX. DEMATIEI.

Threads free, rarely collected into stem-like bundles, more or less corticated, and carbonized, as are frequently the simple or septate spores.—*Berk. Outl. p. 342.*

In the more typical species there is a distinct membrane, which shells off, and where this does not exist the threads are dark and dingy, but never white, or of pure tints.—*M. J. B.*

Flocci united in a common stem.
- Spores septate, dark, radiating . . . . *Arthrobotryum.*
- Spores simple, in a globose head . . . . *Periconia.*

Flocci free, simple.

With a vesicular head.
- Spores simple, radiating . . . . . *Œdocephalum.*

Even, straight.
- Spores 1-2 apical, subglobose . . . . *Monotospora.*
- Spores simple, moniliform, basal . . . *Sporodum.*

Torulose.
- Spores solitary, multicellular . . . . *Mystrosporium.*

Thickened at the joints.
- Spores fusiform . . . . . *Arthrinium.*
- Spores biconical, angular . . . . . *Gonatosporium.*

Thickened at the apex.
- Spores curved, apical, in clusters . . . *Camptoum.*

Moniliform.
- Spores didymous . . . . . *Polythrincium.*

Flexuous.
- Spores on sporangiform bodies . . . . *Œdemium.*

Obscure or delicate.
- Spores basal, multicellular . . . . *Macrosporium.*

Flocci free, simple, or branched.
- Spores concatenate, septate . . . . *Dendryphium.*
- Spores concatenate, simple . . . . *Haplographium.*
- Spores in a globose head . . . . . *Sporocybe.*
- Spores septate, apical . . . . . *Acrothecium.*
- Spores multiseptate, scattered . . . . *Helminthosporium*
- Spores pedicellate . . . . . *Septosporium.*
- Spores triradiate . . . . . *Triposporium.*
- Spores flat, spiral . . . . . *Helicoma.*
- Spores clavate, at first spiral . . . . *Helicocoryne.*

Flocci branched, flexuous.
- Spores uniseptate . . . . . *Cladosporium.*

Flocci branched, upper joints inflated
- Spores septate . . . . . *Cladotrichum.*

Flocci with short, verticellate branches.
- Spores single . . . . . *Stachybotrys.*

Flocci branched, tufted.
- Spores globose, clustered . . . . . *Cephalotrichum.*

Gen. **201.** **ARTHROBOTRYUM,** Cesati.

Fig. 236.

Common stem composed of jointed threads; spores large, radiating, so as to form a little head, dark, septate.—*Berk. Outl. p.* 342. (*Fig.* 236.)

1685. Arthrobotryum atrum. *B. & Br.* "Black Arthrobotryum."

Stem short; spores large, hyaline at the extremities, unequally articulated. —*Ann. N. H. no.* 822, *t.* 9, *f.* 6.

On dead nettle stems. Dec. Bathcaston.

Minute, stem short, composed of simple, articulated threads, which are swollen above, and terminate in subelliptic, very obtuse, unequally articulated spores, which are dark in the centre and hyaline at the extremities, (·001-·0015 in.) long, exclusive of the swollen base.—*B. & Br.* (*Fig.* 236.)

1686. Arthrobotryum stilboideum. *Ces.* "Dense-headed Arthrobotryum."

Stem elongated; spores cylindrical, obtuse, three times as long as broad, triseptate.—*Cesati. Hedw. t.* 4, *f.* 1. *B. & Br. Ann. N.H. no.* 943. *A. Broomii. Rabh. exs. no.* 65.

On pollard willows. April.

Spores ·0005 in. long, forming a dense *Stilbum*-like head.

[A similar, if not identical, species has been found once on a piece of straw from Norfolk, but the spores were only bi-nucleate, *not* septate, perhaps immature.]

Gen. **202.** **DENDRYPHIUM,** Corda.

Fig. 237.

Threads free, jointed, simple below, branched above; branches and branchlets often monilioid; spores septate, acrogenous, concatenated.—*Berk. Outl. p.* 342.

The spores in this genus sometimes form moniliform threads, and sometimes exhibit the more usual mode of growth in *Septonema*. (*Fig.* 237.)

1687. Dendryphium comosum. *Wallr.* "Woolly Dendryphium."

Tufts indeterminate, black; stem simple, brown, moniliform above; spore-bearing threads radiating, simple, or branched, or

forming a rather dense head; spores polymorphous, elongated, septate, yellow-brown; articulations sub-quadrate, contents granular.—*Wallr. Fl. Cr.* ii. *p.* 300. *Corda.* i. *f.* 279. *Rabh. F.E. no.* 82. *B. & Br. Ann. N.H. no.* 820. *Fckl. exs. no.* 1523.

On dead nettle stems.

The base of the stem is sometimes sheathed, as in the genus *Sporochisma*.

1688. Dendryphium curtum. *B. & Br.* "Short Dendryphium."

Thinly effused; flocci erect, divided above into short, forked ramuli; spores curved, 3-7 septate, articulations constricted.—*Ann. N.H. no.* 538, *t.* 6, *f.* 9. *Cooke exs. no.* 357.

On dead stems of nettles. Dundee, &c.

Black, forming very thin, effused patches. Fertile flocci springing from creeping filaments, erect, straight, septate, divided above into a few short furcate or trifid ramuli, which are surmounted by curved 3-7 septate spores, whose articulations are strongly constricted. A small but neat species, remarkable for the short-forked ramuli. The tips of these are often greatly constricted at the articulations when the spores begin to grow.—*B. & Br.* (*Fig*, 237.)

1689. Dendryphium laxum. *B. & Br.* "Loose-branched Dendryphium."

Stems short, loosely branched above; spores elongated, subflexuose 7-11 septate.—*Ann. N.H. no.* 539, *t.* 6, *f.* 10.

On dead stems of *Inula viscosa*. King's Cliffe.

Patches effused, black; flocci short, erect, articulated, sending off loose branches, which either spring at once from them, or are replaced by a few swollen joints; spores linear, curved, or somewhat flexuous, multiseptate, springing often from the forked tips; articulations slightly constricted; endochrome frequently containing a nucleus.—*B. & Br.*

1690. Dendryphium ramosum. *Cooke.* "Branched Dendryphium."

Patches effused, black; flocci erect, articulated, branched above; branches furcate, elongated, lax; spores straight, cylindrical, 3-5 septate.—*Cooke exs. no.* 294.

On herbaceous stems. July. Ashmanhaugh, Norfolk.

The branches are not radiating as in *D. comosum*, septate, but not moniliform, lax, but more capitate than *D. laxum*. Branches three or four times as long as in *D. curtum*.

1691. Dendryphium griseum. *B. & Br.* "Grey Dendryphium."

Grey; flocci sparingly branched; spores cylindrical, concatenate, at length uniseptate, hyaline.—*Ann. N.H. no.* 540, *t.* 6, *f.* 11. *Rabh. F.E. no.* 83.

On dead nettle stems. Mareh.

Bluish-gray, forming little patches; flocci sparingly branched almost from the base, as far as we have seen inarticulate; spores cylindrical, apiculate at either end, elongated, arranged in dichotomous chains, at length divided by a central septum. This is not like the other species, dark and opaque. The line of demarcation between the chains of spores and threads is strongly marked.—*B. & Br.*

1692. Dendryphium fumosum. *Berk.* "Elegant Dendryphium."

Tufts black, or dingy, more or less effused; flocci erect, short, paler above; spores large, clavate or elongated, endochrome transversely multiseptate, brown.—*Cooke Quekett Journ.* ii.(1870), *t.* 5. *Dactylium fumosum, Corda Mucedinees, t.* xxii. *Helminth. fumosum, Curr. Micr. Jour.* v. *p.* 116, *t.* 8, *f.* 6.

On dead *Umbellifers.*

The flocci are stiff and erect, and when ripe of a very dark brown or almost black colour, being so opaque that it is a matter of difficulty to make out that they are septate. At the apices of the flocci there originate several rows of almost colourless cells, arranged in a moniliform manner, and spreading in different directions. The spores are attached in rows at the extremities of the chains of colourless cells, and are of a rich brown, usually somewhat narrowed at each end, and divided by several transverse lines, which have the appearance of septa. – *Curr.*

Gen. **203.** **PERICONIA,** Corda.

Stem composed of fasciculate, compacted threads; head globose; spores fixed to the free apices of the threads. *Berk. Outl. p.* 343. (*Fig.* 238.)

Fig. 238.

1693. Periconia glaucocephala. *Corda* "Glaucous-headed Periconia."

Tufts delicate, farinose, glaucescent; stem short, slender, smooth, black-brown, opaque, pulvinate above; head spherical, large, glaucous; spores ovate, nucleate.—*Ann. N.H. no.* 495. *Corda. Ic.* iii. *f.* 37.

On rotten linen. King's Cliffe.

The threads of which the stem is composed are swollen at the apex into a pulvinate capitulum, about which the spores form a spherical head. (*Fig.* 238.)

1694. Periconia calicioides. *Berk.* "Small-headed Periconia."

Black, mycelium effused, spot-like; head globose, compact; stem slender, subulate.—*Berk. Outl. p.* 343. *Sporocybe*

calicioides, Fr. S.M. iii. *p.* 342. *Eng. Fl.* v. *p.* 333. *Vet. Ac.* 1816, *t.* 5, *f.* 6.

On dead herbaceous stems.

Head small, soon falling off.

Gen. **204.** **ŒDOCEPHALUM,** Preuss.

Fig. 239.

Hyphasma creeping, septate, stem erect, septate, simple, ending in a vesicular head which bears the spores; spores simple, subradiating.—*Preuss in Sturm.* vi. *p.* 121. (*Fig.* 239.)

1695. **Œdocephalum læticolor.** *B. & Br.*
"Bright-coloured Œdocephalum."

Very minute, brick red, stem equal, pallid; head subglobose; spores globose, granulated, appendiculate.—*Ann. N.H. no.* 1056, *t.* 14, *f.* 12.

On sheep's dung. Oct. Bathcaston.

Not half a line high, sending out at the base a few threads into the matrix; before the head is formed nearly cylindrical, with some large oil globules, which at length, in great manner, vanish; spores ·0006-·0008 in. diameter, with a little appendage at the base like those of *Epicoccum.*—*B. & Br.* (*Fig.* 239.)

Gen. **205.** **SPOROCYBE,** Fries.

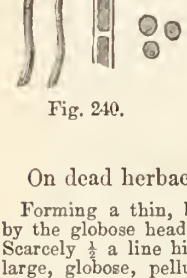


Fig. 240.

Flocci septate, free; heads globose, studded with spores.—*Berk. Outl. p.* 343. (*Fig.* 240.)

1696. **Sporocybe byssoides.** *Fr.*
"Velvety Sporocybe."

Black; head globose, compact; spores globose; stem subulate, pellucid at the apex.—*Fr. SM.* iii. *p.* 343. *Eng. Fl.* v. *p.* 333. *Nees. N.A. Cur.* ix. *t.* 5, *f.* 9. *Bon. t.* 10, *f.* 217. *Rabh. F.E. no.* 64. *Cooke exs. no.* 278.

On dead herbaceous stems. Winter. [United States.]

Forming a thin, black, velvety stratum, easily recognised under a lens by the globose heads with which the hairs of the pile are terminated. Scarcely ½ a line high; stem stiff, brown, obscurely annulated; spores large, globose, pellucid, brown, minutely echinulate. The apex of the stem is generally a little incrassated, forming a receptacle for the sporidia. —*M. J. B.*

1697. Sporocybe nigrella. *Berk.* "Black Sporocybe."

Very minute, black; stem simple, very slender, articulated; spores globose, smooth.—*Berk. Ann. N.H. no.* 226, *t.* 13, *f.* 16.

On dead leaves of grass. King's Cliffe, &c.

Extremely minute, not one-fourth of a line high, dark black; stem slender with 4-5 articulations; heads globose; spores globose, smooth, with a globose nucleus. The whole plant is dark, so that it requires a good light to see the articulations of the stem, which are, however, very evident.—*M. J. B.* (*Fig.* 240.)

1698. Sporocybe alternata. *Berk.* "Alternate Sporocybe."

Grey-black, forming little orbicular patches; extremely minute; mycelium thin, decumbent; fertile flocci articulate, erect, or subdecumbent, branched alternately in a zigzag manner; each branch terminated by a slightly swollen receptacle, which is studded with oblong subtruncate spores.—*Ann. N.H. no.* 227. *Aspergillus alternatus. Berk. Ann. N.H. no.* 126, *t.* 8, *f.* 11.

On damp paper. [Mid. Carolina.]

The mode of branching is, as it were, annotinous, the same as that of *Ascotricha chartarum.*

Gen. **206. STACHYBOTRYS,** Corda.

Fig. 241.

Flocci septate, free; branches bearing short, verticillate ramuli at their apices, forming a little head, and each terminated by a spore.—*Berk. Outl. p.* 343. (*Fig.* 241.)

1699. Stachybotrys atra. *Corda.*
"Black Stachybotrys."

Tufts delicate, black; stem dichotomous, sparsely septate, olive-yellow, branches colourless at the apex; spores brown, ovate, or elliptic, with a thick, transverse septum.—*B. & Br. Ann. N.H. no.* 817. *Corda.* i. *f.* 278. *Pay. f.* 333.

On damp millboard.

The spores are not in any stage echinulate, nor are they so broad as in *S. lobulata.* (*Fig.* 241.)

1700. Stachybotrys lobulata. *Berk.* "Lobed Stachybotrys."

Black, threads branching proliferously; ramuli subalternate, attenuated; apices 4-5 lobed; spores elliptic, echinulate, or

smooth, binucleate.—*Berk. Outl. p.* 343. *Sporocybe lobulata. Berk. Ann. N.H. no.* 228, *t.* 13, *f.* 17. *Rabh. F.E. no.* 171.

On damp linen.

From the articulated creeping mycelium spring slender very minutely scabrous threads, branched proliferously; ramuli often alternate attenuated, their apices swelling into a pyriform 4-5 lobed receptacle, from which spring elliptic sporcs, some of which are echinulate, others smooth, with two nuclei. The lobes are not mamillate as in *S. atra*, and the spores have no true septum.—*M. J. B.*

Gen. **207.** **HAPLOGRAPHIUM,** B. & Br.

Fig. 242.

Flocci septate, free, black; spores concatenate, hyaline.—*B. & Br. Ann. N.H. no.* 818. *Berk. Outl. p.* 343.

Distinguished from *Graphium* by its stem, consisting of a single thread, and from *Penicillium* by this being carbonized. (*Fig.* 242.)

1701. Haplographium delicatum. *B. & Br.* "Delicate Haplographium."

Heads small, somewhat olivaceous; spores oblong.—*B. & Br. Ann. N.H. n.* 818, *t.* 9, *f.* 4.

On dead stumps. Batheaston.

Forming a subolivaceous stratum; flocci black, mostly simple, but occasionally slightly divided; heads small, composed of sub-dichotomous threads, consisting of oblong sublinear spores, about ·0002 in. long. The flocci, when squeezed, often split longitudinally, though they are not in the slightest degree compound.—*B. & Br.* (*Fig.* 242.)

Gen. **208.** **MONOTOSPORA,** Corda.

Fig. 243.

Flocci septate, free, black, bearing one or rarely two (by division) large black subglobose spores at their apex.—*Berk. Outl. p.* 344. (*Fig.* 243.)

1702. Monotospora megalospora. *B. & Br.* "Large-spored Monotospora."

Flocci straight, simple; spores obovate, large, even.—*B. & Br. Ann. N.H. no.* 759, *t.* 15, *f.* 11, *and no.* 943*.

On bark of yew. King's Cliffe.

Jet black; flocci erect, straight, nearly equal, simple, articulated; spores terminal, obovate, even, (·0014-·00133 in.) ·035 m.m. long.—"A form has occurred on an old stump with broadly fusiform spores, ·0012 in. in diameter."—*B. & Br.* (*Fig.* 243.)

1703. Monotospora sphærocephala. *B. & Br.* "Round-headed Monotospora."

Stratum effused, dense black; flocci simple; spores globose, even.—*B. & Br. Ann. N.H. no.* 819, *t.* 9, *f.* 5.

On dead stumps. Dec. Batheaston.

Forming a dense black stratum; flocci black, moderately thick, with two or three septa; spores globose, terminal, even, ·001 in. diameter; sometimes seated on a swollen base. This differs from *M. megalospora* in that the spores are globose, not obovate, and smaller.—*B. & Br.*

Gen. **209. CEPHALOTRICHUM,** Link.

Fig. 244.

Flocci free, septate, branched at the apex, and forming there a little globose tuft of hairs, on which are seated the spherical spores.—*Berk. Outl. p.* 344. (*Fig.* 244.)

1704. Cephalotrichum curtum. *Berk.* "Short Cephalotrichum."

Scattered; heads subglobose, bronze-brown; stem short, 1-2 septate, brown; terminal flocci branched, slightly scabrous; spores globose.—*Berk. Ann. N.H. no.* 222, *t.* 12, *f.* 13.

On leaves of *Carices*. Collyweston.

Extremely minute; stem short, brown, even, with 1-2 septa, very slightly thickened at the base; heads globose, or sometimes broadly ovate, bronzy brown; threads springing in a little tuft from the top of the stem, forked or ternate, with one or two short acute branchlets, slightly scabrous; spores globose, with a small globose nucleus, smooth.—*M.J.B.* (*Fig.* 244.)

Gen. **210. ŒDEMIUM,** Fr.

Fig. 245.

Flocci free, dark, flexuous; spores seated on sporangiform bodies towards the base.—*Berk. Outl. p.* 344. (*Fig.* 245.)

705. Œdemium atrum. *Fr.* "Black Œdemium."

Flocci erect, densely aggregated, simple or subramose, black, opaque; sporangiform bodies black, subglobose; spores minute, subglobose, scabrous, hyaline. — *Corda. Sturm.* vi. *t.* 9. *B. & Br. Ann. N.H. no.* 501. *Bisch. f.* 3816.

On fallen branches. [Low. Carolina.]

The structure of this plant is at present very imperfectly ascertained. The flocci are of a vinous-brown, and here and there invested with mucilage. The larger sporangiform bodies which adhere to them seem very much to resemble an *Epicoccum*, with its globose, or somewhat obovate scabrous spores.—*M. J. B.* *(Fig. 245.)*

Gen. **211.** **HELMINTHOSPORIUM,** Link.

Fig. 246.

Flocci irregular, simple, or slightly branched, bearing here and there multiseptate spores.—*Berk. Outl. p.* 344. *Eng. Fl.* v. *p.* 336.

Tulasne does not consider this a true genus, but made up of forms, which are conditions of different species of *Sphæria*. New facts are continually strengthening this opinion, but at present only a few species have been satisfactorily traced; hence we have retained all, provisionally. *(Fig. 246.)*

1706. **Helminthosporium Smithii.** *B. & Br.* "Smith's Helminthosporium."

Tufts spongy; threads simple, flexuous; spores very long; endochromes nearly equal to the diameter; common epispore thick.—*B. & Br. Ann. N.H. no.* 507, *t.* 5, *f.* 5. *Rabh. exs.* 271. *Cooke exs. no.* 361. *Quekett Journ.* ii. (1870), *t.* 7. *Curr. Micr. Journ.* v. *p.* 115, *t.* 8, *f.* 1-5.

On dead holly twigs, &c. Common.

Tufts effused when growing on the wood, linear, and often forming somewhat reticulate, erumpent patches when produced on the bark, rather spongy, coarsely velvety; threads simple, flexuous, articulated; articulations irregular, several times as long as broad; spores terminal, extremely long, linear, multi-articulated, sometimes bent or flexuous; general epispore double, the outer coat thin, the inner extremely thick; endochromes united, about as long as broad, sometimes moniliform, or very irregular, here and there surrounded by a broad cavity, which appears granular under the microscope.—*B. & Br.*

1707. **Helminthosporium folliculatum.** *Corda.* "Pod-spored Helminthosporium."

Tufts thin, indeterminate, tomentose; flocci lax, branched, brown, slender; spores very long, folliculate, rather thick,

brown, semi-pellucid, endochrome divided into quadrate nucleate cells.—*Corda*. i. *t*. 3, *f*. 180. *Berk. Ann. N.H. no*. 231.

On dead wood, stems of umbelliferous plants, and cabbage stalks. King's Cliffe.

1708. Helminthosporium macrocarpum. *Grev.* "Large-spored Helminthosporium."

Flocci aggregate, lax, subulate, simple, black; spores large, clavato-fusiform, pellucid, 6-8 septate.—*Grev. t*. 148. *Eng. Fl*. v. *p*. 336. *Fr. S.M*. iii. *p*. 356. *Sphæria ciliaris. Sow. t*. 339. *Fckl. exs. no*. 1627.

On rotten sticks. [United States.]

Easily distinguished by the large, clavate, multiseptate spores.

1709. Helminthosporium subulatum. *Nees.* "Awl-shaped Helminthosporium."

Flocci aggregate, subulate, nearly simple, straight, black; spores large, clavate, incurved, 3-4 septate.—*Nees. Nov. Act*. ix. *f*. 13. *Eng. Fl*. v. *p*. 336. *Corda. Sturm. t*. 14. *Fr. S.M*. iii. *p*. 357. *Bisch*. 3712.

On oak branches. Appin.

Flocci far more slender than in *H. macrocarpum*, so that the habit is different.

1710. Helminthosporium velutinum. *Lk.* "Velvety Helminthosporium."

Flocci densely aggregate, somewhat branched, obtuse, black; spores large, obovato-clavate, 3-4 septate.—*Link. Sp*. i. *p*. 47. *Nees. f*. 65 *B. Grev. t*. 148, *f*. 2. *Eng. Fl*. v. *p*. 336. *Fr. S.M*. iii. *p*. 359. *Bisch. f*. 3719. *Schnzl. t*. 12, *f*. 30-33. *Rabh. F.E. no*. 78. *Fckl. exs. no*. 106. *Cooke exs. no*. 358.

On rotten sticks.

1711. Helminthosporium fusisporum. *Berk.* "Spindle-spored Helminthosporium."

Flocci densely aggregate, slightly branched, obtuse, black; spores fusiform, narrower than the flocci, 6-7 septate.—*Eng. Fl*. v. *p*. 336.

On rotten sticks. Beeston, Notts.

1712. Helminthosporium nanum. *Nees.* "Dwarf Helminthosporium."

Floeci scattered, simple or forked, obtuse, knotty, their apices forming large, sub-cylindric, 3-4 septate spores, slightly shorter than the floeci.—*Nees. Nov. Act.* ix. *f.* 13. *Fr. S.M.* iii. *p.* 359. *Eng. Fl.* v. *p.* 336. *Bisch. f.* 3717.

On herbaceous stems. Winter.

Sporidia of a dark pellucid brown.

1713. Helminthosporium simplex. *Kze.* "Simple Helminthosporium."

Floeci aggregate, simple, or slightly branched, obtuse, black; spores fusiform, acute, pellucid, septa evanescent.—*Nees. N.A. Cur.* ix. *f.* 11. *Corda, Fr. S.M.* iii. *p.* 359. *Eng. Fl.* v. *p.* 337. *Bisch. f.* 3715.

On rotten branches.

Forming a thin, dirty, uniform stratum like that of some *Torula*; septa 2-3.

1714. Helminthosporium tiliæ. *Fr.* "Lime Helminthosporium."

Floeci simple, obtuse, obscurely annulated, brown-black, fasciculate, on a convex erumpent stroma, the greater part changed into spores.—*Fr. S.M.* iii. *p.* 360. *Eng. Fl.* v. *p.* 337. *Bisch. f.* 3787. *Ann. N.H.* 230, *t.* 13, *f.* 18. *Exosporium Tiliæ, Grev. t.* 208. *Sphæria echinata, Sow. Herb.*

On lime branches. Common.

1715. Helminthosporium Rousselianum. *Mont.* "Roussel's Helminthosporium."

Flocci simple, congregated, sooty black, bulbous at the base, apex pellucid, oblong, incrassated, and nodulose, remotely septate; spores fusiform, hyaline, 3-5 septate.—*Mont. Ann. Sc. Nat.* iii. *Nov.* 1849, *p.* 300. *B. & Br. Ann. N.H. no.* 508*.

On beech, with *Sporochisma mirabile*, *B.* of which it is a secondary form of fruit.

1716. Helminthosporium turbinatum. *B. & Br.* "Top-shaped Helminthosporium."

Flocci slender, simple; spores elongato-turbinate, truncately apiculate, 4-7 articulate, opaque.—*B. & Br. Ann. N.H. no.* 508, *t.* 5, *f.* 6.

On dead wood. July. Lancashire.

Patches thin, effused, finely velvety ; threads short, linear, slender, obscurely articulated, even when most transparent ; spores of a deep rich brown, varying greatly in size and length, but always more or less turbinate; attenuated greatly below, obtuse above, with a sudden more or less truncate apiculus, which often seems as if a joint had separated from it. Distinguished from all the other species by the peculiar shape and character of the spores.—*B. & Br.*

1717. Helminthosporium obovatum. *Berk.* "Obovate Helminthosporium."

Flocci subulate, multi-articulate, nearly equal ; spores obovate, brown, biseptate.—*Berk. Ann. N.H. no.* 232, *t.* 13, *f.* 19.

On old planks exposed to wet.

Forming a short dense velvety-black stratum, flocci very slightly attenuated, subulate, either nearly straight, or slightly flexuous ; spores broadly obovate, with two dissepiments, which divide them into three very unequal articulations.—*M. J. B.*

1718. Helminthosporium delicatulum. *Berk.* "Delicate Helminthosporium."

Very delicate, flocci subulate, multi-articulate ; spores oblong, obtuse, 4-5 septate, pellucid ; with an occasional vertical septum. —*Berk. Ann. N.H. no.* 233, *t.* 13, *f.* 20.

On stems of *Umbellifers*. King's Cliffe.

Forming very delicate soft patches of scattered filaments, presenting to the naked eye a cloudy black spot ; flocci very slender, subulate, multi-articulate, brown, paler at the tips ; spores nearly colourless, oblong, with the apices very obtuse, consisting of about five swollen articulations, one or two of which have occasionally a vertical dissepiment.—*M.J B.*

1719. Helminthosporium sticticum. *B. & Br.* "Grass Helminthosporium."

Spots gregarious, punctiform, black; spores oblong-elavate, uniseptate.—*B. & Br. Ann. N.H. no.* 758, *t.* 15, *f.* 10.

On decaying leaves of grass. Batheaston.

Disposed in minute specks, jet black, threads fasciculate, nodose or irregular ; spores .0016 in. long, oblong, swollen above, uniseptate. The punctiform spots, black not olivaceous hue, and uniseptate spores are the characteristics of this species.—*B. & Br.*

1720. Helminthosporium clavariarum. *Desm.* "Parasitic Helminthosporium."

Flocci densely aggregated, simple, very short, straight, obtuse, septate, black; spores large, oblong, 1-2 septate, pellucid or

opaque.—*Desm. Ann. Sc. Nat.* ii. *t.* 2, *f.* 2. *Berk. Ann. N.H. no.* 123.

On *Clavaria rugosa.* King's Cliffe.

1721. Helminthosporium oosporum. *Corda.* "Egg spored Helminthosporium."

Flocci scattered, simple, black-brown, semi-pellucid; spores oblong-ovate, tetradymous, yellowish brown, pellucid.—*Corda.* 1, *f.* 200. *B. & Br. Ann. N.H. no.* 944. *Kl. exs. no.* 1789.

On sticks. Feb. East Bergholt.

(*Fig.* 246, *magnified.*)

1722. Helminthosporium apiculatum. *Corda.* "Apiculate Helminthosporium."

Tufts effused, tomentose, very black, flocci fasciculate, flexuous, quite simple, brown, pellucid, spores elliptico-fusiform, polyseptate, of the same colour, apical joint apiculate.—*Corda.* i. *f.* 191. *B. & Br. Ann. N.H. no.* 945.

On dead wood. Twycross.

1723. Helminthosporium apicale. *B. & Br.* "Tip-spored Helminthosporium."

Flocci simple, even, attenuated upwards; spores apical, elliptic, 3 septate, hyaline at each extremity.—*B. & Br. Ann. N.H. no.* 947, *t.* 16, *f.* 15.

On rotten sticks. April. Langley, Wilts.

Threads simple, even, attenuated upwards, articulated, the ultimate joint having two or three little inequalities, to each of which is attached an elliptic spore .0007 in. long, triseptate, dark in the centre, and hyaline at either extremity —*B. & Br.*

1724. Helminthosporium altum. *Preuss.* "Tall Helminthosporium."

Tufts effused, tomentose, very black, flocci slender, long, simple, subpellucid, then very black and opaque; spores apical, oblong or pyriform, attenuated, more or less septate, brown-black, pellucid.—*Sturm.* xxvi. *t.* 17. *B. & Br. Ann. N.H. no.* 948.

On dead sticks. Twycross.

1725. Helminthosporium scolecoides. *Corda.* "Long-spored Helminthosporium."

Tufts indeterminate, black; flocci simple, then branched, brown, angularly flexuose, rigid, semi-pellucid; spores very long

torulose, multiseptate, brown, basal and apical joint yellowish, pellucid.—*Corda.* i. *f.* 179. *B. & Br. Ann. N.H.* 1865, *no.* 1052.

On dead herbaceous stems. Twycross.

1726. Helminthosporium rhabdiferum. *B. & Br.* "Peach Helminthosporium."

Flocci erect, slightly branched, very short; spores straight, multiseptate, articulations torulose, brown.—*B. & Br. Ann. N.H.* (1865), *no.* 1053. *Macrosporium rhabdiferum. Gard. Chron.* 1864, *p.* 938, *with fig.*

On ripe peaches. Sept. Bodelwyddan.

Shallow pits about half an inch in diameter appear on the surface of the fruit, the centre of which is occupied by the mould, bearing a profusion of spores, so as to blacken the finger when touched; mycelium of waved articulated threads, giving off stouter erect flocci, with shorter joints, slightly branched above, bearing at their tips the large spores, which are at first oblong and pale, with one or two transverse septa. These rapidly acquire a dark tint, elongate, become more or less linear, with 7-11 swollen divisions, the terminal one mostly apiculate, $\frac{1}{500}$-$\frac{1}{250}$ in. long.—*M. J. B.*

1727. Helminthosporium dendroideum. *B. & Br.* "Tree-like Helminthosporium."

Flocci erect, attenuated upwards, articulated, ramuli short; spores terminal, oblong fusiform, multi-articulate.—*B. & Br. Ann. N.H. no.* 946, *t.* 16, *f.* 14.

On maple. Feb. Batheaston. [S. Carolina.]

Threads attenuated upwards, articulated; each joint above giving off one or two short branchlets, terminated by an oblong, subfusiform, slightly curved, multi-articulate spore, ·0024 in. long, each joint containing a globose nucleus.—*M. J. B.*

This species seems rather to belong to *Acrothecium* as emended.

1728. Helminthosporium echinulatum. *Berk.* "Echinulate Helminthosporium."

Flocci fasciculate, irregularly nodose; spores hyaline, cylindrical 2-4 septate, echinulate.—*Gard. Chron.* (1870), *p.* 382, *fig.* 63.

On leaves of carnations.

Leaves studded with large round white spots, on which a brown mould is developed, arranged in little concentric tufts; threads extremely regular, forming little fascicles, slightly branched, branches often assuming the form of knots, and the upper knots in some cases bearing the spores, while occasionally they occupy the colourless upper portion of the threads; spores cylindrical, with from two to four articulations, slightly constricted occasionally at the dissepiments, and beautifully echinulate, $\frac{1}{833}$-$\frac{1}{333}$ in.—*M. J. B.*

1729. Helminthosporium reticulatum. *Cooke.* "Reticulate Helminthosporium."

Forming dendritic and reticulated patches on both surfaces of the leaves, orbicular or irregular; flocci slender, flexuous, generally simple; spores elliptical, obtuse, triseptate.—*Cooke. exs. no.* 360.

On dead leaves of ash. Dec.

This species has more the appearance of an *Asteroma* than an *Helminthosporium* to the naked eye. In habit, at least, it is very distinct.

Gen. **212. MACROSPORIUM,** Fries.

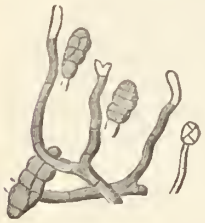


Fig. 247.

Flocci obscure or delicate; spores erect, basal, pedicellate, with at length transverse and vertical septa.—*Berk. Outl. p.* 345. *Eng Fl.* v. *p* 339. (*Fig.* 247.)

1730 Macrosporium cheiranthi. *Fr.* "Common Macrosporium."

Flocci decumbent, extremely fugacious; sporidia pyriform, articulato-septate, black; peduncle short.—*Fr. S.M.* iii. *p.* 374. *Eng. Fl.* v. *p.* 339.

On damp paper, decaying plants, &c. [United States.]

var. β. **betæ.** *Cooke.* Spores scarcely coloured.—*Cooke exs. no.* 197. *Macrosporium commune. Rabh. F.E. no.* 1360.

On leaves of beet.

The sporidia vary extremely in form, some are clavate, with a single row of articulations, in others the two or three upper cells have a vertical septum; others are broadly clavate, and others again obovate, each articulation divided by vertical partitions into many cells. All are more or less constricted. The flocci are very delicate, and difficult to detect, though certainly present. The peduncles vary in length; more than one are sometimes given off by the same thread of the mycelium.—*M. J. B.* Probably a condition of *Sphæria herbarum.*

1731. Macrosporium sarcinula. *Berk.* "Gourd Macrosporium."

Flocci suberect, delicate, fugacious, slightly branched; spores

clavate, at length subrectangular, multiseptate, constricted, variable.—*Berk. Ann. N.H. no.* 125, *t.* 8, *f.* 10.

On decaying orange gourds. King's Cliffe.

Its first appearance is that of orbicular white downy patches, consisting of suberect slightly branched threads. These soon vanish, leaving a dark-olive green stratum, consisting at first of short clavate filaments, with one or two septa. Their apices gradually become much incrassated, and the number of articulations increases. The septa are mostly horizontal, with a few vertical ones; a few occasionally are inclined. In this state the colour is yellowish when viewed by transmitted light. The spores gradually assume a browner tint, become more and more distinct from the peduncle, and at length fall off, acquiring a rectangular outline, resembling very much little corded bales, from which circumstance the name is taken. They vary greatly in size, and in the number of cells. A few of the peduncles are seen amongst the spores, their articulations being frequently swollen above.—*M. J. B.*

See also *Sphæria herbarum*, of which this is a conidiophorous condition.

1732. Macrosporium concinnum. *Berk.* "Powdery Macrosporium."

Spots pulverulent, velvety, black; flocci flexuous, articulated, brown; spores obovate, pedicellate, at length oblong.—*Berk. Ann. N.H. no.* 235, *t.* 12, *f.* 21. *Helminthosporium striæforme. Corda.*

On decorticated osier twigs of an old hamper. Sept. Apethorpe.

Spots elongated, black; flocci minute, waved, brown below, pellucid above, often with the rudiment of a branch at the apex; spores obovate, with about three principal dissepiments, which are divided vertically or obliquely, furnished with a very short pellucid peduncle. This peduncle at length vanishes, and they lose their obovate form and become oblong.—*M. J. B.* (*Fig.* 247.)

1733. Macrosporium brassicæ. *Berk.* "Cabbage Macrosporium."

Flocci obsolete, sporidia clavate, antennæform, 5-11 septate, rather longer than the peduncle.—*Eng. Fl.* v. *p.* 339.

On decaying cabbage leaves. King's Cliffe.

Intermixed with *Cladosporium herbarum*, of which it is probably a condition.

1734. Macrosporium heteronemum. *Desm.* "Arrow-head Macrosporium."

Flocci erect, septate, of two forms, distinctly united in small fascicles; spores large, pedicellate, oblong-clavate, tawny, with the endochrome divided transversely, and here and there longitudinally, into numerous cells; pedicels hyaline.—*Ann. des Sc. Nat.* 1853, xx. *p.* 216. *Desm. exs. ed.* ii. *no.* 7. *Cooke Seem. Journ. Bot.*

On fading leaves of *Sagittaria sagittifolia*. Sept. Irstead, Norfolk. Bungay, Suffolk.

On both surfaces of the leaves; spots scattered, tawny, irregular, sometimes confluent; flocci of two kinds, one conidiiferous, short, nodulose, tawny; the other simple, elongated, subflexuose, hyaline, obtuse above, and attenuated below.

Gen. **213.** **MYSTROSPORIUM,** Corda.

Fig. 248.

Flocci erect or ascending, quite simple, septate, torulose, opaque, bearing a solitary spore at the apex; spores multicellular.—*Corda. Ic.* ii. *p.* 13.

(*Fig.* 248.)

1735. **Mystrosporium stemphylium.** *Corda.* "Obovate Mystrosporium."

Tufts broadly effused, black; flocci short, flexuous, erect, olive-brown; spores obovate, polymorphous, unequal, multicellular, brown, yellow, or olive; peduncular appendage paler.—*Corda.* ii. *f.* 61. *B. & Br. Ann. N.H. no.* 949. *Pay. f.* 324.

On dead wood. Bury St. Edmunds. (*Fig.* 248.)

Spores ·0015 in. diameter.

Gen. **214.** **ACROTHECIUM,** Corda.

Fig. 249

Flocci creeping or erect, septate, simple or branched, branches ascending; spores clustered at the apex, or solitary at the tips of the branches; septate.—*Corda. Ic.* ii. *p.* 10.

The typical species of Corda has the flocci creeping, and branched, the spores solitary and fusiform. The generic character has been extended, so as to include *A. multisporum*, Preuss, and the British species, which could hardly have been retained under the original characters. (*Fig.* 249.)

1736. Acrothecium simplex. *Berk.* "Simple Acrothecium."

Flocci simple, flexuous, irregular, septate, brown; spores few, apical, 4-5 septate, oblong, sub-clavate, hyaline, slightly coloured. —*B. & Br. Ann. N.H. no.* 950, *t.* 16, *f.* 16.

On nettle stems. Dec. Bathcaston.

Spores terminal, about three together. Differs from *A. multisporum*, Preuss, in the simple stem, without any creeping threads, and the small number of spores. (*Fig.* 249.)

1737. Acrothecium delicatulum. *B. & Br.* "Delicate Acrothecium."

Effused, black, flocci straight; spores linear, with one or more septa, hyaline.—*B. & Br. Ann. N.H. no.* 1055, *t.* xiv. *f.* 11.

On dead wood, probably beech and bramble.

The spores are confined to the upper part of the stem, but not to the apex itself. Occasionally the flocci are forked. Spores ·00045-·0007 in. long. The form which occurs on bramble has scattered flocci, but differs in no other respect.—*B. & Br.*

Gen. **215.** **SEPTOSPORIUM,** Corda.

Fig. 250.

Flocci erect, sparsely septate; spores heterogenous, cellular, pedicellate; pedicels septate.—*Corda. Ic.* i. *p.* 12.

1738. Septosporium bulbotrichum. *Corda.* "Bulbous Septosporium."

Tufts effused, thin, brown; flocci simple, bulbous at the base, septate, obtuse, darker below, brown, yellowish above, diaphanous; spores pedicellate, oblong-clavate, yellowish, pedicels septate, attenuate, attached at the base.—*Corda. Icon.* i. *f.* 176. *Corda. Anl. t. B. f.* 10, *no.* 7. *Pay. f.* 332.

On rotten wood.

Externally resembling a *Helminthosporium*. The base of the flocci is decidedly bulbous, and to it the spores are attached. (*Fig.* 250 *magnified.*)

Gen **216.** **TRIPOSPORIUM**, Corda.

Fig. 251.

Flocci erect, jointed, bearing at their apices tri-radiate, articulated spores.—*Berk. Outl. p.* 345. (*Fig.* 251.)

1739. Triposporium elegans. *Corda.* "Elegant Triposporium."

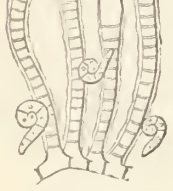
Mycelium slender, effused, brown; flocci slender, simple, or branched, brown, intricate, remotely septate; spores stellate, brown in the centre, rays paler, apices and pedicel colourless.—*Corda.* i. *f.* 220. *Bon. t.* 3, *f.* 75. *Corda. Mucedinces t.* x. *Fig. f.* 329. *Quekett Journ.* ii. 1870, *t.* 8. *B. & Br. Ann. N.H. no.* 509 & 1053*.

On decorticated oak. Feb. Somerset. [Low. Carolina.]

The spores vary considerably in length and in the number of articulations. Sometimes this mould occurs with globose spores at the tips of the three terminal processes.—*M. J. B.*

(*Fig.* 251, *flocci and spores magnified.*)

Gen. **217.** **HELICOMA**, Corda.



Flg, 252.

Flocci erect, dark, jointed, bearing on their sides pale, flat, spiral spores.—*Berk. Outl. p.* 345. (*Fig.* 252.)

1740. Helicoma Mulleri. *Corda.* "Muller's Helicoma."

Tufts broadly effused, tomentose, olive-black; flocci fasciculate, connate, simple, straight, rigid, apex somewhat thickened, brown, pellucid, septate; spores spirally convolute, 5-septate, colourless, hyaline.—*Corda.* i. *t. f.* 219. *Corda. Anl. t. B. f.* 11, *no.* 4. *Fckl. exs. no.* 105. *B. & Br. Ann. N.H. no.* 510.

On dead wood. [Low. Carolina.]

The spire of the spores generally open, but sometimes closed up. The threads also vary much. The British specimens are somewhat doubtfully referred to Corda's species, as a variety. In American specimens the spores accord with Corda's fig., but the threads are differently articulated. (*Fig.* 252.)

Gen. **218.** **HELICOCORYNE,** Corda.

Fig. 253.

Flocci erect, septate, simple; spores scattered, lateral, clavate, 4-5 septate, attenuated downwards, at first spirally involved, or revolute, ultimately incurved.—*Corda. Ic.* vi. *p.* 9. (*Fig.* 253.)

1741. Helicocoryne viridis.
Corda. "Greenish Helicocoryne."

Tufts effused, olive-green, delicate; flocci simple, olive, hyaline at the apex; spores large, clavate, colourless, hyaline.—*Corda. Icon.* vi. *f.* 38. *B. & Br. Ann. N.H. no.* 951.

On dead wood. (*Fig.* 253.)

Gen. **219.** **CLADOTRICHUM,** Corda.

Fig 254.

Flocci erect, thick, branched, upper joints cup-shaped or inflated; spores large, septate.—*Berk. Outl. p.* 345. (*Fig.* 254.)

1742. Cladotrichum triseptatum.
B. & Br. "Triseptate Cladotrichum."

Flocci forked, very much branched, articulated, upper articulations inflated; spores oblong, very obtuse, constricted in the middle, triseptate.—*Ann. N.H. no.* 511, *t.* 5, *f.* 7.

On dead stumps. July. King's Cliffe.

Widely effused, forming a thin black, powdery stratum; flocci forked and branched, septate from the base; upper articulations swollen in the centre, or above; spores oblong, extremely obtuse, constricted in the centre, triseptate, the central septum answering to the line of constriction. (*Fig.* 254.)

Gen. **220.** **POLYTHRINCIUM,** Kunze.

Fig. 255.

Flocci moniliform; spores springing from the midst of the flocci, didymous.—*Berk. Outl. p.* 346. *Eng. Fl.* v. *p.* 338. (*Fig.* 255.)

1743. Polythrincium trifolii. *Kze.* "Clover Polythrincium."

Flocci densely crowded, erect, gradually thickened upwards, closely articulated, moniliform; spores oval, uniseptate, scattered.—*Kunze. M.H. t.* 1, *f.* 8. *Bisch. f.* 3721. *Corda. Anl. t. B. f.* 10, *no.* 6. *Cooke exs. no.* 196. *Grev. t.* 216. *Moug. exs. no.* 688. *Baxt. exs. no.* 84. *Corda. t.* 9. *Eng. Fl.* v. *p.* 338. *Fckl. exs. no.* 58. *Berk. exs. no.* 97. *Farinaria trifolii, Sow. t.* 396, *f.* 7.

On fading leaves of *Trifolium.* Common. [United States.]

Forming little black sooty dots on the leaves, often in company with *Ascobolus Trifolii* or *Dothidea Trifolii,* probably conidia of the latter species. (*Fig.* 255.)

Gen. **221.** **CLADOSPORIUM,** Link.

Fig. 256.

Flocci flexuous, more or less branched, jointed, flexible; spores short, at length uniseptate, springing from the sides or terminal.—*Berk. Outl. p.* 346. (*Fig.* 256.)

1744. Cladosporium herbarum. *Lk.* "Common Cladosporium."

Tufts effused, soft, dense, green, then olive-black; flocci collapsing, pellucid, as well as the olivaceous spores.—*Link. Sp.* 1, *p.* 39. *Fr. S.M.* iii. *p.* 370. *Eng. Fl.* v. *p.* 338. *Nees. f.* 64, *B. Cooke exs. no.* 352. *Dematium articulatum, Sow. t.* 400, *f.* 8. *Fl. Dan. t.* 2277, *f.* 2. *Corda. Anl. t. B. f.* 10, *no.* 1. *Bisch. f.* 3733.

Hedw. i. *t.* 10. *Pringsh. Jahrb.* ii. *t.* 30, *f.* 27. *Kl. exs. no.* 67, ii. *no.* 333. *Fckl. exs. no.* 110.

On all sorts of decaying substances. Common.
[United States.]

One of the commonest of Fungi, and very variable. Numerous species have been characterized, but it is questionable whether many of them should not be united under this, which scarcely claims a place as a distinct species, since Tulasne has indicated its affinity with *Sphæria herbarum*, of which he regards it as a conidiophorus condition, as well as *Macrosporium sarcinula*, Berk. and probably *Macrosporium cheiranthi* Fr. (*Fig.* 256.)

1745. Cladosporium epiphyllum. *Nees.* "Leaf Cladosporium."

Flocci erect, at length declining, fasciculate, sub-olivaceous, intricately branched, mixed with concatenate threads of simple spores of the same colour, which afterwards become septate.—*Nees. Syst.* ii. *p.* 67. *Rabh. F.E. no.* 77. *Kl. exs. no.* 187. *Cooke exs. no.* 188. *Fckl. exs. no.* 113. *Corda. Ic.* 1, *p.* 14, *f.* 204.

On dead leaves.

Forming small scattered tufts, more or less orbicular, particularly on oak leaves.

1746. Cladosporium fasciculare. *Fr.* "Fasciculate Cladosporium."

Fascicles minute, slightly erumpent, flocci bent at the apex, sub-septate; spores conglobate and seriate, of the same colour or pellucid.—*Fr. S.M.* iii. *p.* 370. *Corda.* iii. *t.* i. *f.* 20. *Pers. Disp. t.* 4, *f.* 2. *Fckl. exs. no.* 109.

On asparagus stems. (A. Jerdon.)

1747. Cladosporium dendriticum. *Wallr.* "Dendritic Cladosporium."

Flocci very short, simple, disposed in minute punctiform fascicles, which become confluent in dendritic spots; spores fusiform, simple, sometimes clavate.—*Wallr. Fl. Germ.* ii. *p.* 169. *Ann. N.H. no.* 512. *Fckl. exs. no.* 115, *C. pyrorum*, *Berk. Gard. Chron.* 1848. *p.* 398. *Helminthosporium pyrorum*, *Lib. exs. no.* 188. *Desm. exs. no.* 1051. *Actinonema cratægi*, *Gard. Chron.* (1855), *p.* 725. *Berk. exs. no.* 42.

On pear leaves. Autumn.

var. β. **orbiculatum.** Spores pyriform, shorter.—*Berk. Gard. Chron.* 1848, *p.* 716. *C. orbiculatum*, *Desm. exs. no.* 1843. *B. & Br. Ann. N.H. no.* 513.

On leaves of *Cratægus pyracantha*. Chiswick.

1748. Cladosporium bacilligerum. *Mont.* "Anomalous Cladosporium."

Flocci slender, simple or branched, flexuous, clustered in small sooty tufts; apex incrassated, obtuse, olivaceous, septate; spores simple, stipitate, separating with an articulation.—*Mont. Ann. Sc. Nat.* vi. *p.* 31, *t.* 12, *f.* 5. *Cooke exs. no.* 290. *Passalora bacilligera, Fr. S.V.S. p.* 500. *Fres. Beitr. t.* xi. *f.* 55-58. *Fckl. exs. no.* 1518.

On fading leaves of *Alnus glutinosa.*

The spores resemble in form those of some species of *Puccinia*, since, in separating from the flocci, they carry with them the last articulation, so that they appear to be long uniseptate spores. It is a very distinct and curious species.

1749. Cladosporium depressum. *B. & Br.* "Depressed Cladosporium."

Maculæform, depressed; spores elongated, uniseptate; flocci very short, equal.—*Ann. N.H. no.* 514, *t.* 5, *f.* 8.

On leaves of *Angelica sylvestris.*

Spots minute, scattered, olive-green, depressed; flocci short, straight, or flexuous, sometimes quite even, sometimes waved or nodulose; spores much elongated, as long as the threads, terminal, uniseptate. Sometimes they are constricted and the articulations much swollen. They often germinate *in situ*, giving out a delicate waved thread from the centre of the articulations.—*B. & Br.*

1750. Cladosporium brachormium. *B. & Br.* "Concatenate Cladosporium."

Effused, grey; flocci erect, flexuous, nodulose above; spores oblong, shortly concatenate, terminal.—*B. & Br. Ann. N.H. no.* 515.

On leaves of *Fumaria officinalis.* King's Cliffe.

Gray, forming a thin stratum; flocci erect, flexuous, somewhat nodulose, terminated by one or more short rows of elliptic-oblong spores. It approaches the genus *Dendryphium.*

1751. Cladosporium lignicolum. *Corda.* "Wood Cladosporium."

Tufts effused, tomentose, black; flocci short, sub-simple, brown; spores minute, of the same colour, multiseptate.—*Corda.* i. *t.* 3, *f.* 206. *B. & Br. Ann. N.H. no* 516. *Kl. exs. no.* 1271.

On dead wood. Apethorpe.

"The spores in this species are very opaque. It is just the plant of Corda, but a doubtful *Cladosporium*."—*M. J. B.*

1752. Cladosporium nodulosum. *Corda.* "Nodulose Cladosporium."

Tufts oblong, narrow, olive-brown, then blackish; flocci cæspitose, long, flexuous, pale brown, curved at the apex, simple, with very short lateral projections, or nodular spurious branchlets; spores large, oblong, or cuneate, simple or uniseptate.—*Corda.* i. *t.* 4, *f.* 212. *B. & Br. Ann. N.H. no.* 517. *Kl. exs.* ii. *no* 765.

On dead herbaceous stems. Feb. Wraxall, Som.

Remarkable for the alternate projections on which the spores are seated.

Gen. **222.** **ARTHRINIUM,** Kunze.

Fig. 257.

Flocci erect, septate, dark, and slightly thickened at the septa; spores straight, swollen in the middle, and pointed at either extremity (fusiform).—*Berk. Outl. p.* 346. (*Fig.* 257.)

1753. Arthrinium sporophlæum. *Kze.* "Sedge Arthrinium."

Flocci slender, rather short; spores oblong, acute, minute, very copious.—*Fres. t.* 3, *f.* 49-52. *Kunze. M.H.* ii. *p.* 104. *B. & Br. Ann. N.H. no.* 519. *Fckl. exs. no.* 128. *A. puccinioides, Berk. exs. no.* 311. *Desm. exs. no.* 602. (*Fig.* 257.)

On *Carices.*

Gen. **223.** **GONATOSPORIUM,** Corda.

Fig. 258.

Flocci erect, septate, thickened at the septa; spores irregularly biconical, and in consequence somewhat angular, attached in whorls.—*Berk. Outl. p.* 346. (*Fig.* 258.)

1754. Gonatosporium puccinioides. *Corda.* "Sedge Gonatosporium."

Tufts round, black, shining, minute, gregarious; flocci erect, subulate, septate, swollen at the septa, diaphanous, simple, very rarely branched; spores

brown, yellow when young, polymorphous, angular.—*Fckl. exs. no.* 126. *Corda.* iii. *t.* 1, *f.* 18. *B. & Br. Ann. N.H. no.* 236-519. *Torula Eriophori. Eng. Fl.* v. *p.* 359.

On various *Carices*. Wilts. Somerset. (*Fig.* 258.)

Gen. **224.** **CAMPTOUM,** Link.

Fig. 259.

Flocci erect, septate, thickened at the apex and black; spores curved, dark, fixed in clusters at the apices.—*Berk. Outl. p.* 347. (*Fig.* 259.)

1755. Camptoum curvatum. *Lk.*
"Curved Camptoum."

Tufts minute, very black; flocci dwarf, erect, with black and white bands; spores large, brown, polymorphous, curved.—*Link. Sp.* i. *p.* 44. *B. & Br. Ann. N.H. no.* 518. *Berk. exs. no.* 310. *Kl. exs. no.* 461. *Corda. Anl. t. B. f.* 12, *no.* 6. *Fckl. exs. no.* 127.

On *Scirpus sylvaticus*. Spye Park, Wilts. (*Fig.* 259.)

Gen. **225.** **SPORODUM,** Corda.

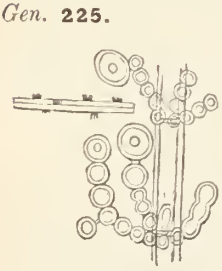


Fig. 260.

Flocci erect, septate; threads of inarticulate spores moniliform, seated towards their base.—*Berk. Outl. p.* 347. (*Fig.* 260.)

1756. Sporodum conopleoides.
Corda. "Grass Sporodum."

Tufts minute, hemispherical, black; flocci quite simple, septate, rather obtuse, dark-brown; spores at first yellow, then brown, globose nucleus darker.—*Corda.* i. *t.* 247, iii. *t.* i. *f.* 22. *Corda. Anl. t. B. f.* 14, *no.* 1. 2. *Kl. exs. no,* 774. *B. & Br. Ann. N.H. no.* 543. *Dematium hispidulum. Ann. N.H.* vii. *no.* 234. *Fr. S.M.* iii. *p.* 366. *Lib. exs. no.* 284. *Fckl. exs. no.* 104.

On dead grasses. Common.

From the middle of the flocci spring one or two obovate joints, which support two or three rows of sporidia, of which those at the apices are the largest.—*M. J. B.* (*Fig.* 260.)

Order XXI. MUCEDINES.

Threads never coated with a distinct membrane, mostly white or coloured, more rarely dingy.—*Berk. Outl. p.* 347.

Flocci forming a common stom.
- Spores moniliform, in cylindrical heads . . . *Stysanus.*

Flocci free, mostly simple.
- With a globose head.
  - Spores in moniliform threads . . . . *Aspergillus.*
  - Spores singly, on spicules . . . . . *Rhopalomyces.*
- Clavate above.
  - Spores in moniliform threads . . . . *Nematogonum.*
  - Spores singly on spicules . . . . . *Rhinotrichum.*
- Not expanded above.
  - Spores moniliform in fascicles . . . . *Monilia.*
  - Spores moniliform, simple . . . . . *Oidium.*
  - Spores moniliform, septate . . . . . *Cylindrium.*
- Curled at the tips.
  - Spores globose, conglomerated . . . . *Bolacotricha.*
- Joints swollen.
  - Spores obovato, on spicules . . . . . *Gonatobotrys.*

Flocci dichotomous.
- Black, spores scattered . . . . . *Virgaria.*
- Pallid, spores scattered at the tips . . . . *Haplaria.*

Flocci with quarternate branches.
- Spores in spikes . . . . . *Clonostachys.*

Flocci branched, erect.
- Spores simple.
  - Single and terminal.
    - Threads septato . . . . . *Botrytis.*
    - Threads seldom septate . . . . *Peronospora.*
  - In terminal clusters . . . . . *Polyactis.*
  - In basal clusters . . . . . *Myxotrichum.*
  - Moniliform in tassels . . . . . *Penicillium.*
  - In heads on spicules . . . . . *Botryosporium.*
  - Elongated, in terminal bundles . . . . *Menispora.*
- Spores septate.
  - Terminal . . . . . *Dactylium.*

Flocci subulate, branched below.
- Spores cylindrical . . . . . *Chætopsis.*

Flocci branched, tips spiral.
- Spores globose, granulate . . . . . *Acrospeira.*

Flocci branched in whorls.
- Spores terminal, single . . . . . *Verticillium.*
- Spores terminal, in globose masses . . . . *Gonytrichum.*

Flocci decumbent.
- Spores solitary, terminal . . . . . *Acremonium.*
- Spores scattered . . . . . *Sporotrichum.*
- Spores studding a cellular head . . . . *Papulaspora.*
- Spores globose, threads cut half through . . . *Zygodesmus.*

Flocci evanescent.
- Spores straight, fusiform . . . . . *Fusidium.*

Gen. **226.** **ASPERGILLUS,** Mich.

Fig. 261.

Threads erect, articulate, crowned with a globose head, producing necklaces of spores. *Berk. Outl. p.* 347. (*Fig.* 261.)

1757. Aspergillus glaucus. *Lk.* "Blue Mould."

Sterile flocci effused, white; fertile threads simple, their apices capitate; sporidia rather loosely packed, at length glaucous.—*Berk. exs. no.* 208. *Eng. Fl.* v. *p.* 339. *Mucor. glaucus. Sow. t.* 378, *f.* 9. *Corda. St. t.* 7. *Mucor. aspergillus. Bull. t.* 504, *f.* 10.

On various decaying substances, as lard, bread, cheese, &c. Very common. Variable in colour. [United States.]

"Flocci indistinctly articulate when fresh; head covered with a subpellucid grumous substance, on which are seated the globose sporidia arranged in radiating moniliform threads."—*M. J. B.* (*Fig.* 261.)

1758. Aspergillus dubius. *Corda.* "Doubtful Aspergillus."

Tufts minute, white; stem simple, straight, pellucid; capitulum globose, white, covered with linear, elavate sporophores, which bear the chains of obovate, unequal, colourless spores.—*Corda.* ii. *t.* 4, *f.* 77. *B. & Br. Ann. N.H. no.* 520.

On rabbit's dung. Nov. King's Cliffe.

In this very curious species the head is covered with linear processes, each of which is surmounted by four sterigmata, on which are developed the chains of spores.—*M. J. B.*

1759. Aspergillus candidus. *Lk.* "White Aspergillus."

Sterile flocci effused, white; fertile threads simple, thickened at their apices; sporidia compact, white.—*Berk. Eng. Fl.* v. *p.* 339. *Chev. t.* iv. *f.* 17. *Fr. S.M.* iii. *p.* 385.

On various decaying substances. Common.

Smaller than *Aspergillus glaucus*, with a stiffer habit and more compact sporidia.

1760. Aspergillus roseus. *Lk.* "Pink Aspergillus."

Mycelium thin; fertile flocci simple; sporidia globose, rose-red.—*Berk. Eng. Fl.* v. *p.* 340. *Batsch. f.* 58.

On damp paper, lint, carpet, &c. [Mid. Carolina.]

"Flocci not septato; sporidia globose, minute, arrangod in moniliform rows."—*M. J. B.*

1761. Aspergillus mollis. *Berk.* "White-branched Aspergillus."

Fertile flocci white, erect, dichotomously branched; apices clavate; sporidia large, subglobose.—*Berk. Eng. Fl.* v. *p.* 340.

On dead leaves. Winter.

"Forming minute, scattered, pure white fascicles, with a thin procumbent mycelium."—*M. J. B.*

1762. Aspergillus virens. *Lk.* "Green-branched Aspergillus."

Tufts rather dense; flocci entangled, sub-erect, heads as well as the branched flocci greenish.—*Berk. Eng. Fl.* v. *p.* 340. *Fr. S.M.* iii. *p.* 388. *Grev. Fl. ed. p.* 467.

On decaying *Agarics*.

Gen. **227. NEMATOGONUM,** Desm.

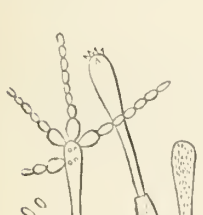


Fig. 262.

Threads clavate at the apices, and bearing necklaces of spores on distinct scattered spicules.—*Berk. Outl. p.* 348. (*Fig.* 262.)

1763. Nematogonum aurantiacum. *Desm.* "Orange Nematogonum."

Mycelium delicate, effused; flocci ferruginous-orange; spores of the same colour, oval.—*Desm. Ann. Sc. Nat.* (1834), ii. *t.* 2, *f.* 1. *Berk. Outl. p.* 348. *Aspergillus aurantiacus. Ann. N.H. no.* 237, *t.* 13, *f.* 22. *Berk. exs. no.* 272. (*Fig.* 262.)

On elm bark. Apethorpe. [Low. Carolina.]

When in perfection the threads are simple, and the spores attached in moniliform rows to a larger one at their base. It has, however, a great tendency to become proliferous, especially when it has been beaten down by the weather.—*M. J. B.*

1764. Nematogonum aureum. *Berk.* "Golden Nematogonum."

Fertile flocci erect, short, simple, clavate; sporidia large, thinly scattered, elliptic, golden yellow.—*Aspergillus aureus. Berk. Eng. Fl.* v. *p.* 340.

On bark.

"Flocci short, consisting of about four articulations, clavate above, and covered thinly with large, subelliptic, yellow sporidia."—*M. J. B.*

Gen. **228. RHINOTRICHUM,** Corda.

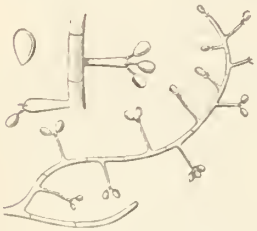


Fig. 263.

Threads erect, articulate, clavate above, and bearing spores attached to spicules.—*Berk. Outl. p.* 348. (*Fig.* 263.)

1765. Rhinotrichum Bloxami. *B. & Br.* "Bloxam's Rhinotrichum."

Scattered, white; fertile flocci clavate above; spores white, subelliptic.—*Ann. N.H. no.* 541, *t.* 7, *f.* 19.

On dead wood. Twycross. [S. Carolina.]

Patches irregularly effused, seldom continuous, white or cream-coloured; mycelium decumbent, white, septate; fertile flocci erect, sometimes very sparingly divided; tips clavate, bearing scattered spicules, surmounted by subelliptic or slightly obovate spores, which are sometimes obtuse, sometimes apiculate; sometimes the ultimate articulations are moniliform, very rarely the penultimate joint has one or two spicules.—*B. & Br.*

1766. Rhinotrichum Thwaitesii. *B. & Br.* "Thwaites' Rhinotrichum."

Epigæous, yellow, effused; hyphasma woven; fertile flocci ascending, dichotomous, apices slightly thickened.—*B. & Br. Ann. N.H. no.* 542, *t.* 6, *f.* 12.

On the bare soil. Aug. Bristol.

Patches suborbicular or confluent, thelephoroid, yellow, with a pale margin; hyphasma consisting of closely packed, decumbent, articulate threads, the ends of which rise up and are branched dichotomously, their apices swelling slightly, and clothed with globose, echinulate, shortly pedicellate spores.—*B. & Br.*

1767. Rhinotrichum opuntia. *B. & Br.* "Cactus Rhinotrichum."

Flocci furcate, here and there swollen, ultimate ramuli clavate, with transverse rows of spores.—*Ann. N.H. no.* 761, *t.* 16, *f.* 13.

Near Woolwich.

White; flocci rather thick, simple below, two or three times forked, slight, swollen here and there; ultimate divisions clavate, beset with transverse rows of globose spores.—*B. & Br.*

1768. Rhinotrichum repens. *Preuss.* "Creeping Rhinotrichum."

Mycelium effused, cinereous; flocci branched, colourless, intricate, septate, creeping, branches erect, verrucose above, bearing ovate-acuminate, grey, smooth, nucleate spores.—*Preuss. Sturm.* XXV. *t.* 22. *B. & Br. Ann. N.H.* (1866), *no.* 1149.

On fallen trunks. Oct. May.

Looks like a mere bloom, so that it might easily escape notice. The spores are borne on little wart-like projections on the upper portion of the branches.

1769. Rhinotrichum lanosum. *Cooke.* "Woolly Rhinotrichum."

White, with a pale ochraceous tinge, forming dense woolly tufts, barren flocci very delicate branched, ascending, fertile flocci decumbent, long, delicate, septate, with short patent branches, tips with 2-4 spicules, each with a single, obovate, hyaline spore.—*Clinotrichum lanosum. Cooke exs. no.* 356. *Pop. Sci. Rev. Jan.* 1871, *t.* 68, *f.* 1-3.

On damp wall paper. April.

There are sometimes three or four, but more commonly one or two spores at the tips of the branches, each attached to a short spicule. We were at first disposed to regard this as the type of a new genus under the name of *Clinotrichum*, but, on more mature consideration, prefer including it here. (*Fig.* 263.)

Gen. **229.** **BOTRYTIS,** Mich.

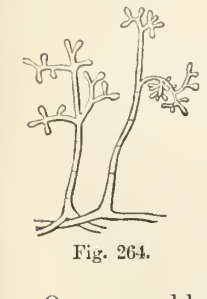


Fig. 264.

Threads septate, irregularly or dichotomously branched, hyaline or coloured; spores terminal.—*Berk. Outl. p.* 348. (*Fig.* 264.)

1770. Botrytis Tilletii. *Desm.* "Tawny Botrytis."

Fertile flocci branched, tawny, ramuli very short and verticillate; spores subglobose.—*Desm. Ann. Sc. Nat.* (1838), x. *p.* 308. *Desm. exs. no.* 226. *Br. & Br. Ann. no.* 529.

On moss and leaves, &c.

One of the most splendid species of the genus, remarkable for its highly branched threads and verticillate ramuli, the colour of the whole plant is pale tawny or fawn.—*B. & Br.*

1771. Botrytis citrina. *Berk.* "Lemon-coloured Botrytis."

At first white; fertile flocci erect, articulated, branched; branches subcymose, lemon-coloured, as well as the obovate spores.—*Berk. Ann. N.H. no.* 127, *t.* 8, *f.* 12.

On dead twigs of cherry. Summer. King's Cliffe.

Forming thin delicate mucedinous patches, about an inch across; mycelium nearly white, as indeed is the whole plant at first. (*Fig.* 264.)

1772. Botrytis Jonesii. *B. & Br* "Rectangular Botrytis."

Flocci erect, branched above, branches and branchlets divergent, mostly opposite, ultimate ramuli fasciculate, central always sterile, very acute; spores subglobose, echinulate.—*B. & Br. Ann. N.H. no.* 760, *t.* 15, *f.* 12.

On dung of dogs, rabbits, &c. Woolwich. Wothorpe.

Flocci erect, tinged with fawn colour, simple below, with a few straight main branches above, mostly at right angles, and often opposite. These are again divided once or twice in the same way, the central one being always barren, the others bearing about the middle fascicles of fertile branchlets, each tipped with a sub-globose echinulate spore (·0003 in.) ·0075 m.m. long.—*B. & Br.*

1773. Botrytis terrestris. *P.* "Terrestria Botrytis."

Fertile flocci branched above, white, branchlets quaternate, obtuse, sporiferous; spores globose.—*Pers. M.E.* i. *p.* 38. *B. & Br. Ann. N.H. no.* 240, *t.* 14, *f.* 24. *Stachylidium terrestre, Fr. S.M.* iii. *p.* 391. *Eng. Fl.* v. *p.* 341. *Grev. W.T. t.* 5, *f.* 6. *Grev. t.* 257.

On the naked ground.

The sporidia are seated singly on the tips of the ramuli. Mycelium dense, branched, intricate. Easily distinguished by a peculiar, scattered, dot-like mode of growth.—*M.J.B.*

Gen. **230.** **PERONOSPORA,** De By.

Fig. 265.

Parasitic threads mostly inarticulate; spores of two kinds, conidia on the tips of the branchlets; oospores large, globose, on the creeping mycelium.—*Berk. Outl. p.* 349. (*Fig.* 265.)

1774. Peronospora infestans. *Mont.* "Potato Peronospora."

Threads of mycelium slender, always destitute of suckers; fertile threads thin, gradually attenuated upwards, with one to five branches, one or more inflated vesicles near the apices of the branches; branches either simple or with short branchlets; acrospores ellipsoid or ovoid, apex furnished with a prominent papilla.—*Cooke Micro. Fungi, t.* 14, *f.* 264. *Pop. Sc. Rev.* iii. *t.* 8, *f.* 3. *Botrytis infestans. B. & Br. Ann. N.H. no.* 521. *Journ. Hort. Soc.* i. *t.* 4. *De Bary Ann. Sc. Nat.* (1863). xx. *t.* 5, 6. *Desm. exs. no.* 1492. *Rabh. exs. no.* 1879. *Fckl. exs. no.* 37. *Cooke exs. no.* 192. *Berk. exs. no.* 345.

On potato stems, leaves, and tubers, &c. Common.

Producing the well-known potato disease.

1775. Peronospora nivea. *Ung.* "Parsnip Peronospora."

Threads of mycelium stout, often torulose; suckers numerous, vesicular, obovate; fertile threads fasciculate, dwarfish, tapering or subulate, or once or twice shortly bifurcate, rarely trifurcate, with one to four horizontal branches near the summit, once, twice, or three times bifurcate; acrospores subglobose or ovoid, with an obtuse papilla at the apex.—*Cooke Micr. F. p. Botrytis macrospora. Ung. exs. t.* 2, *f.* 14. *B. & Br. Ann. N.H. no.* 527. *Rabh. exs. no.* 1172, *F.E. no.* 376. *Fckl. exs. no.* 27. *Cooke exs. no.* 191. *Botrytis crustosa Fr. Berk. exs. no.* 333. *Eng. Fl.* v. *p.* 343.

On various *Umbellifers.*

The roots of the plants which are infested with this mould are generally diseased, like the tubers of potatoes attacked by *P. infestans.*

1776. Peronospora pygmæa. *Ung.* "Anemone Peronospora."

Threads of mycelium thickened, often constricted and varicose; suckers minute, obovate, or pear-shaped; fertile threads fasciculate (2-5 or more), simple above, or divided at the apex into 2-4 short simple branches, or shortly twice dichotomous, or all simple, obtuse, surmounted by 2-4 short spicules; acrospores ovoid or ellipsoid, variable in size; apices broadly and obtusely papillate.—*Cooke Micr. Fung. t.* 15. *f.* 267. *Ung. Bot. Zeit.* 1847, *t.* 6, *f.* 8. *Botrytis curta. Berk. Ann. N.H. no.* 128, *t.* 8, *f.* 13. *Berk. exs. no.* 209. *Corda.* v. *f.* 21. *Rabh. exs. no.* 373, 374. *Fckl. exs. no.* 2.

On wood-anemone.

Extremely minute, at length gray-brown ; floeei simple, abbreviated, their tips dentieulate.

1777. Peronospora gangliformis. *Berk.* "Lettuce Peronospora."

Threads of the mycelium stout, now and then torulose; suckers vesicular, obovate, or clavate; fertile threads 2-6 times dichotomous, sometimes trichotomous; stems and primary branches slender, dilated or inflated above; the ultimate ramuli inflated at the apex into a turbinate or subglobose vesicle bearing from 2-8 subulate processes or spieules ; acrospores minute, subglobose ; apices with broad, depressed papillæ, produced on the spicular processes.—*Cooke Micr. F. t.* 14, *f.* 265. *Pop. Sc. Rev.* iii. *t.* 8. *f.* 4. *Botrytis ganglioniformis. Berk. Journ. Hort. Soc.* i. *t.* 4. *Ann. N.H. no.* 526. *Fckl. exs. no.* 33. *Cooke exs. no.* 190. *Rabh. exs. no.* 1775, *F.E. no.* 290. *Bremia lactucæ. Reg. Bot. Zeit.* 1843, *t.* 3. *B. Botrytis geminata. Ung. Bot. Zeit.* 1847, *t.* 6, *f.* 9.

On lettuee leaves. Spring. Common.

1778. Peronospora parasitica. *Pers.* "Cabbage Peronospora."

Threads of the mycelium thickened and mueh branched ; suckers numerous, branched ; branches clavate, obtuse; fertile threads thick, soft, flexile, equal, or unequal, 5-8 times dichotomous, rarely trichotomous; branches always repeatedly trifurcate ; acrospores broadly elliptical, very obtuse at the apex, white.—*Cooke Micr. Fung. t.* 13, *f.* 262. *Pop. Sc. Rev.* iii. *t.* 8, *f.* 1. *Berk. exs. no.* 331. *Botrytis parasitica. Eng. Fl.* v. *p.* 343. *Pers. Obs.* i. *t.* 5, *f.* 5. *Mucor botrytis. Sow. t.* 359. *Ayres. exs. no.* 50. *Corda.* v. *f.* 18. *Rabh. exs. no.* 175 *and* 324, *F.E. no.* 86. *Fckl. exs. no.* 5. 8. 23. *Cooke exs. no.* 193.

On eruciferous plants. Common. [Low. & Mid. Carolina.]

1779. Peronospora viciæ. *Berk.* "Pea Peronospora."

Fertile threads densely cæspitose, erect, equal, rarely unequal. 6-7-8 times dichotomous ; ultimate ramuli shortly subulate, acute ; acrospores ellipsoid, very obtuse at the apex, obtuse or slightly acute at the base ; membrane with a violaeeous tint.—*Cooke Micr. F. t.* 15, *f.* 266, *t.* 10, *f.* 212. *Pop. Sc. Rev.* iii. *t.* 8, *f.* 5. *Botrytis viciæ. Berk Journ. Hort. Soc.* i. *p.* 31. *B. &. Br. Ann. N.H. no.* 524. *Rabh. exs.* ii. *no.* 490.

On leaves of peas and tares. Common.

1780. Peronospora arenariæ. *Berk.* "Sandwort Peronospora."

Fertile threads slender, 6-7 times equally, rarely unequally, dichotomous; branches spreading; ultimate ramuli slender, acute, subulate, nearly erect; acrospores broadly elliptical, oftentimes very obtuse, small; membrane scarcely violaceous.—*Cooke Micr. F. t.* 7, *f.* 268, *t.* 10, *f.* 211. *Pop. Sc. Rev.* iii. *t.* 8, *f.* 6. *Botrytis arenariæ. Berk. Journ. Hort. Soc.* i. *p.* 31. *B. & Br. Ann. N.H. no.* 523. *Fckl. exs. no.* 18. *De Bary Ann. Sc. Nat.* (1863), xx. *t.* 13, *f.* 8, 9.

On leaves of *Arenaria trinervis*. June.

1781. Peronospora effusa. *Grev.* "Spinach Peronospora."

Fertile threads fasciculate, short, thick, 2-6, rarely 7 times dichotomous above; acrospores broadly ellipsoid, sometimes very obtuse; membrane with a violaceous tint.—*Cooke Micr. F. t.* 10, *f.* 214, 215. *Rabh. exs. no.* 1880. *Fckl. exs. no.* 11, 12. *Botrytis effusa. Grev. Fl. ed. p.* 468. *Eng. Fl.* v. *p.* 343. *Desm. Ann. Sc. Nat.* (1837), viii. *t.* 1. *Cooke exs. no.* 293. *Berk. exs. no.* 53.

On the under side of leaves of spinach, &c. Spring and autumn. Common.

Forming effused spots 2-6 lines broad, generally rendering the leaf yellow. Flocci very short, often abruptly recurved.

1782. Peronospora urticæ. *Casp.* "Nettle Peronospora."

Fertile threads small, loosely 4-6 times dichotomous; branches flexuose, ultimate ramuli subulate, arcuate, often deflexed; acrospores large, broadly ovoid or subglobose, distinctly pedicellate; apices very obtuse; membrane violaceous.—*Cooke Micr. F. p.* 216. *De Bary Ann. Sc. Nat.* (1863), xx. *p.* 116. *Botrytis urticæ. B. & Br. Ann. N.H. no.* 522. *Cooke exs. no.* 292.

On leaves of common nettle.

Patches small, orbicular, greyish lilac; flocci loosely divided above, branches forming an acute angle; extreme ramuli simple or forked, sometimes curved, very rarely inflated. Acrospores large, ovate, apex papillæform.

1783. Peronospora trifoliorum. *De By.* "Clover Peronospora."

Fertile threads cæspitose; equally or unequally 6-7 times dichotomous, rarely trichotomous; ultimate branches subulate,

acute, slightly curved; acrospores ellipsoid, very obtuse; membrane with a slightly violaceous tint; oospores large; epispore brown.—*Cooke Micr. F. p.* 216. *De Bary Ann. Sc. Nat.* (1863), xx. *p.* 117. *Rabh. exs. no.* 775, *F.E. no.* 375. *Fckl. exs. no.* 9. *Cooke exs. no.* 194.

1784. Peronospora grisea. *Ung.* "Veronica Peronospora."

Fertile threads erect, fasciculate, grey, 5-7 times regularly dichotomous; branches gradually attenuated; primary oblique erect, others spreading, flexuose, ultimate mostly unequal, slightly arcuate; acrospores ellipsoid or ovoid, obtuse; membrane pale and dirty violet.—*Ung. Bot. Zeit.* 1847. *Cooke Micr. F. t.* 10, *f.* 213. *Fckl. exs. no.* 10. *De Bary Ann. Sc. Nat.* (1863), xx. *t.* 13, *f.* 12. *Botrytis grisea, B. & Br. Ann. H.N. no.* 528.

On leaves of *Veronica beccabunga.* May.

1785. Peronospora arborescens. *Berk.* "Poppy Peronospora."

Fertile threads slender, erect, 7-10 times dichotomous above; branches more or less flexuose, squarrose, spreading, gradually attenuated; ultimate ramuli shortly subulate, more or less arcuate; acrospores very small, subglobose; membrane scarcely violaceous—.*Cooke Micr. F. p.* 217. *De Bary Ann. Sc. Nat.* (1863), xx. *p.* 119. *Botrytis arborescens, Berk. Jour. Hort. Soc.* i. *p.* 31, *t.* 4, *f.* 24. *B. & Br. Ann. N.H. no.* 525. *Rabh. exs. no.* 323. *Fckl. exs. no.* 4 & 13.

On *Papaver rhœas.* Common.

1786. Peronospora candida. *Fckl.* "Primrose Peronospora."

Densely cæspitose, white; fertile threads slender 6-10 times dichotomously branched; ultimate branchlets short, spreading; acrospores ellipsoid or ovoid, obtuse, minute; oospores bright brown.—*Fckl. exs. no.* 38. *De Bary. Ann. Sc. Nat.* (1863), xx. *p.* 120. *Cooke Micr. Fung. 2nd ed. p.* 225.

On primrose leaves. Corwen, N. Wales.

Forming dense white patches on the under surface of the leaves.

1787. Peronospora Schleideniana. *De By.* "Onion Peronospora."

Fertile threads robust, erect, not septate, branched alternately; ultimate ramuli forked and uncinate or divaricate; acrospores seated on the tips of the ultimate ramuli, obovoid or nearly pear-shaped, attenuated at the base; membrane of a dirty-

violet-colour.—*Cooke Micr. Fung. t.* 13, *f.* 263. *Pop. Sc. Rev.* iii. *t.* 8, *f.* 2. *De. Bary. Ann. Sc. Nat.* (1863), xx. *t.* 13, *f.* 1-3. *Botrytis destructor, Berk. Ann. N.H. no.* 239, *t.* 13, *f.* 23. *Fckl. exs. no.* 41.

On leaves of various species of *Allium*. Spring.

Very common and destructive in some years, preventing the plants which are attacked from coming to perfection. The individual threads are distinct, but form large patches on the leaves, or even entirely cover them. Distinguished easily by the peculiar shape of the acrospores.

1788. Peronospora violacea. *Berk.* "Scabious Peronospora."

Fertile threads branched; aerospores sub-elliptical, violet-coloured.—*Berk. Outl. p.* 349. *Cooke Micr. Fung. p.* 217.

On petals of *Scabiosa arvensis*.

All that is known of this species is contained in the following note from the Rev. M. J. Berkeley:—"It grew on the petals of the common seabious. I have not found it again, and have either lost or mislaid my specimens. You may describe it as *lætè violacea; floccis ramosis; sporis subellipticis, violaceis*. It is probably the *Farinaria* on Seabious of Sowerby."—*M.J.B.*

1789. Peronospora sordida. *Berk.* "Figwort Peronospora."

Forming broad, irregular, dirty, pallid spots on the under surface of the leaves; fertile threads loosely dichotomous above, tips forked, unequal; aerospores obovate, apiculate.—*B. & Br. Ann. N.H. no.* 953. *Cooke Micr. Fung. p.* 217. *Cooke exs. no.* 291.

On leaves of *Scrophularia*.

Forming broad, irregular, dirty, pallid spots on the under side of the leaves; threads loosely dichotomous above; tips forked, unequal; aerospores obovato apiculate (·001 in.) ·025 m.m. long.

1790. Peronospora sparsa. *Berk.* "Rose Peronospora."

Fertile threads scattered, by no means torulose; ultimate branches scarcely uncinate, dichotomous, pallid grey; acrospores sub-elliptical.—*Berk. Gard. Chron.* 1862, *p.* 308, *fig. Ann. N.H.* 1865, *no.* 1057. *Cooke Micr. Fung. p.* 217.

On the under side of rose leaves.

1791. Peronospora obliqua. *Cooke.* "Dock Peronospora."

Threads of the mycelium slender; fertile threads fascieulate, erect, simple, rarely bifurcate, attenuated upwards; acrospores large, ellipsoid, attached obliquely near the base.—*Cooke Micr. Fung. t.* 16, *f.* 269. *B. & Br. Ann. N.H. no.* 1058. *Cooke exs. no.* 195. *Ascomyces Rumicis, Mont.*

On the under surface of dock leaves. Winter and spring. Common.

Brownish circular spots on the leaves indicate the presence of this mould, which is so minute that it might otherwise be overlooked. Spores with a slight swelling towards the base (·001 in.) ·025 m.m. long, often set on obliquely; sometimes they give off below a second spore, and very occasionally there is a septum in the threads.

Gen. **231.** **ACROSPEIRA,** B. & Br.

Fig. 266.

Hyphasma decumbent; fertile flocci erect, branched above, apex of the ramuli somewhat quadri-articulate, spirally convolute; spores subglobose, granulated, springing from one or other of the articulations.—*B. & Br. Ann. N. H. no.* 952. (*Fig.* 266.)

1792. Acrospeira mirabilis. *B. & Br.*
"Curious Acrospeira."

Fertile flocci branched; branches convolute at their apices, four terminal joints swollen; spores subglobose, springing from the second joint.—*Berk. Intr. p.* 305, *f.* 69*a*. *Ann. N.H. no.* 952.

On sweet chestnuts. Bristol.

A most curious fungus, in which the dark granulated spores are formed by a transformation of the second joint from the top of the branchlets. All the four terminal joints swell, but the second only in general proves fertile, though in a few instances the terminal joint also is transformed.—*M.J.B.* (*Fig.* 266.)

Gen. **232.** **VERTICILLIUM,** Link.

Fig. 267.

Flocci septate, hyaline or coloured; branches verticillate; spores apical.—*Berk. Outl. p.* 349. (*Fig.* 267.)

1793. Verticillium apicale. *B. & Br.*
"Short-branched Verticillium."

Effused, olivaceous-black; flocci straight, ramuli apical, very short, incrassated at the base; spores globose.—*Ann. N.H. no.* 531, *t.* 7, *f.* 17.

On decorticated oak branches. Feb. Wraxall, Somerset.

Effused, forming small dark thin patches ; flocci erect, rather closely articulate, bearing at the apex a coronet of very short branches, which are swollen at the base, and strongly attenuated upwards ; spores globose. There is sometimes the rudiment of a lower whorl of branchlets.—*B. & Br.*

1794. Verticillium nanum. *B. & Br.* "Dwarf Verticillium."

Minute, white; flocci vagrantly branched, ramuli opposite ; spores elliptic.—*B. & Br. Ann. N.H. no.* 532, *t.* 7, *f.* 18.

On pears. Cranford Bridge.

Very minute. An obscure species, in which the whorl of ramuli is reduced to two, by which it is distinguished, as well as by the elliptic spores.

1795. Verticillium epimyces. *B. & Br.* "Parasitic Verticillium."

Effused, white, with a flesh coloured tinge ; flocci trifid ; ramuli subternate, elongated ; spores oblong.—*Br. & Br. Ann. N.H. no.* 533, *t.* 7, *f.* 15.

On decayed *Elaphomyces.* Oct. Rudloe, Wilts.

White, with a flesh coloured tinge, forming thin effused patches, which appear compact, and not the least byssoid. Threads once or twice trifid, rarely bifid, ultimate ramuli ternate or binate, slightly swollen below, attenuated upwards ; spores terminal, at first globose, then elongated, when perfect 4-5 times as long as broad.—*B. & Br.*

1796. Verticillium distans. *B. & Br.* "Distant Verticillium."

Scattered, snow-white; flocci slender; branches alternate, ramuli rather long, regularly attenuated; spores oblong, endochrome bipartite.—*B. & Br. Ann. N.H. no.* 534. *t.* 7, *f.* 16.

On herbaceous stems. Cranford Bridge.

Threads short, slender, branched alternately, ramuli 4-6 in a whorl, rather long, regularly attenuated, whorls distant.

Gen. **233.** **HAPLARIA,** Link.

Fig. 268.

Flocci simple or forked, jointed; spores scattered over the tips of the threads.—*Berk. Outl. p.* 349. (*Fig.* 268.)

1797. Haplaria grisea. *Lk.* "Grey Haplaria."

Fertile flocci scattered, sub-simple, equal, grey; sporidia of the same colour, collected here and there in heaps upon the filaments.—*Nees. f.* 49. *Botrytis grisea, Berk. Eng. Fl.* v. *p.* 342.

On decaying vegetables. Autumn.

Especially delighting in *Sparganium*. "Flocci simple or forked, grey, slender, but rather rigid, septate; at the sides and apices are little heaps of globose grey sporidia, giving it at first a whorled aspect. They soon fall off and leave the flocci naked."—*M.J.B.* (*Fig.* 268.)

Gen. **234.** **POLYACTIS**, Link.

Fig. 269.

Flocci septate, brownish, branched above; spores hyaline, in terminal clusters.—*Berk. Outl. p.* 350. (*Fig.* 269.)

1798. **Polyactis vulgaris.** *Lk.* "Common Polyactis."

Flocci grey, sterile, rather fleecy; fertile divided at the apex into lobe-like branchlets, on which are collected the globose, minute sporidia.—*Nees. Sys. f.* 57. *Botrytis vulgaris. Berk. Eng. Fl.* v. *p.* 342.

On rotting plants, gourds, and cabbages. Common.

Variable in ramification, and in colour of the sporidia. (*Fig.* 269.)

1799. **Polyactis cana.** *Berk.* "Hoary Polyactis."

Flocci cinereous, or whitish, sterile effuse, fertile branched at the apex; sporidia large, oval.—*Botrytis cana. Berk. Eng. Fl.* v. *p.* 342. *Fr. S.M.* iii. *p.* 397. *Cooke exs. no.* 355.

On rotting stems and leaves.

Easily distinguished from its allies by the large, oval sporidia; branches rather compact, growing in a botryoid rather than racemose form.—*Eng. Fl.*

1800. **Polyactis vera.** *Berk.* "Micheli's Polyactis."

Flocci grey, sterile rather fleecy, fertile branched above, forming spikes about the slender apices; spores ?—*Botrytis vera. Berk. Eng. Fl.* v. *p.* 343. *Bot. spicata. Mich. t.* 91, *f.* 4. *Mucor. botrytis. Bolt. t.* 132, *f.* 3.

On *Polyporous versicolor*. Near Halifax.

This species appears to have been found by Bolton, and by no one else in Britain.

1801. Polyactis cinerea. *Berk.* "Cinereous Polyactis."

Fertile flocci, gregarious, subsimple, cinereous, soon strangulated; spores attached here and there, globose, whiter than the flocci.—*Botrytis cinerea. Berk. Eng. Fl.* v. *p.* 342. *Pers. Disp. t.* 3, *f.* 9, 10.

On stems of herbaceous plants. Common. [Mid. Carolina.]

This mould is usually found springing from *Sclerotium durum*, which would seem to be the condensed mycelium of this species.

1802. Polyactis fasciculatis. *Corda.* "Fasciculate Polyactis."

Tufts minute, black-brown, shining, frosted above; flocci erect, fastigiate, slightly flexuose, crowded, brown, semi-pellucid above and branches colourless heads of spores sphærical, white, shining; spores oblong.—*Quekett Journ.* 1870, *t.* 6. *Corda. Muced. t.* 16. *Penicillium fasciculatum. Ann. N.H. no.* 129. *Berk. exs. no.* 210.

On decayed vegetable substances.

The spores are comparatively large, and the flocci connate at the base.

Gen. **235.** **PENICILLIUM,** Link.

Fig. 270.

Flocci divided above in a fasciculate manner, septate, as well as the branchlets, which are terminated by necklaces of spores, collected into tassel-like heads.—*Berk. Outl. p.* 350.

(*Fig.* 270.)

1803. Penicillium crustaceum. *Fr.* "Crustaceous Mould."

Sterile flocci white, forming a close crust-like web, fertile somewhat branched, intricate, bifido-penicillate above; sporidia verdigris-green.—*Berk. Eng. Fl.* v. *p.* 344. *P. glaucum. Grev. t.* 58, *f.* 1.

On all sorts of decaying bodies. Very common.

var. β. **coremium.** Fertile flocci, woven into a dense white stem.—*Floccaria glauca. Grev. t.* 301. *Byssus scoparia. Fl. Dan. t.* 897, *f.* 1.

On gum, apples, &c. [United States.]

The mycelioid condition of this species constitutes what is known as "the vinegar plant."

1804. Penicillium sparsum. *Grev.* "Scattered Pencillium."

Sterile flocci effuse, fertile threads simple, scattered, penicillate above; sporidia white.—*Grev. Wern. Trans.* iv. *t.* 5, *f.* 5. *Sc. Crypt. Fl. t.* 58, *f.* 2. *Berk. Eng. Fl.* v. *p.* 344.

On semi-putrid stems of Burdock.

"This species forms whitish spots, ½-1 in. long by several lines wide. On these spots the little pure white heads are very visible to the naked eye, dispersed in a scattered manner over the surface. The threads are simple, erect, and remotely jointed, dividing at the summit into two, and then subdividing into a number of short attenuated ramuli, covered with a profusion of spores."—*Grev.*

1805. Penicillium bicolor. *Fr.* "Bicoloured Penicillium."

Sterile flocci effuse, yellowish, fertile fasciculate, crowded, penicillate above; spores glaucous.—*Fr. S.M.* iii. *p.* 408. *Berk. Outl. p.* 350. *Pers. Obs.* ii. *t.* 4, *f.* 9. *Link. Obs.* i. *f.* 31.

On decaying substances. Autumn.

Flocci distinctly coloured.

1806. Penicillium candidum. *Lk.* "White Penicillium."

Sterile flocci woven together, pure white, fertile threads branched, penicillate; sporidia pure white.—*Berk. Eng. Fl.* v. *p.* 344. *Fr. S.M.* iii. *p.* 409.

On various decaying substances. [Mid. Carolina.]

var. β. **coremium.** Subclavate; flocci woven into a stem. —*Coremium candidum. Nees. t.* 86.

On decaying substances.

Penicillium roseum. *Link.* is an imperfect condition of *Mucor hyalinus.*

1807. Penicillium chartarum. *Cooke.* "Paper Penicillium."

Tufts suborbicular, or irregular, olivaceous; fertile flocci simple or slightly branched below, shortly and dichotomously branched above, with terminal fascicles of oblong moniliform spores; strings of spores simple or branched; pale olive. —*Pop. Sci. Rev. Jan.* 1871, *t.* 68, *f.* 4.

On wall paper, in company with *Sporidesmium Alternariæ (no.* 1440).

In some features this much resembles *P. olivaceum*, Corda, but differs in the spores being oblong instead of globose, and in the ramifications of the flocci. It forms more or less orbicular patches of from ½ to ¾ in. in diameter, often springing from the same spots, and apparently the same mycelium as *Sporidesmium alternariæ*. (See no. 1440.) (*Fig.* 270.)

1808. Penicillium subtile. *Berk.* "Minute Penicillium."

Very minute, snow-white; hyphasma creeping, very delicate; fertile flocci erect, simple, or ternate; chains of broadly elliptic spores scanty.—*Berk. Ann. N.H. no.* 241, *t.* 14, *f.* 25.

Inside a decayed willow. Spring. Tansor, Norths.

Extremely minute and delicate, presenting to the naked eye nothing more than a white mealy bloom. Fertile threads mostly simple, but sometimes ternate, giving off a few chains of rather large, broadly elliptic spores, each furnished at either end with a little apiculus.—*M.J.B.*

Gen. **236. OIDIUM,** Link.

Fig. 271.

Flocci very short, producing a moniliform string of spores by tomiparous division.—*Berk. Outl. p.* 350. (*Fig.* 271.)

1809. Oidium chartarum. *Lk.* "Paper Oidium."

Flocci decumbent, somewhat branched, black; articulations oval.—*Link. Sp.* 1, *p.* 124. *Berk. Ann. N.H. no.* 130.

On damp paper. King's Cliffe.

This is probably a condition of some higher form of paper mould.

1810. Oidium aureum. *Lk.* "Golden Oidium."

Tufts dense, at first villous, white, at length golden yellow; fertile flocci breaking up into oval joints.—*Berk. Eng. Fl.* v. *p.* 348. *Nees. f.* 44. *Torula aurea, Corda. Ic. t.* 8, *f.* 56. *Mucor querneus, Sow. t.* 378, *f.* 12.

On rotten wood. [Mid. Carolina.]

The colour of "golden chrome."

1811. Oidium fulvum. *Lk.* "Tawny Oidium."

Tufts dense, at first white and villous, at length tawny: fertile flocci breaking up into oblong-lanceolate joints.—*Berk. Eng. Fl.* v. *p.* 348. *Torula fulva, Corda. Ic. t.* 8, *f.* 37. *Berk. exs. no.* 295.

On very rotten wood.

"Joints oblongo-lanceolate, the lanceolate form arising from a little truncate sub-cylindric apiculus."—*M.J.B.* (*Fig.* 271.)

1812. Oidium fructigenum. *Schrad.* "Fruit Oidium."

Tufts subcompact, at first villous, with white branched flocci, then with simple, cream-coloured flocci breaking up into oval, pellucid joints.—*Berk. Eng. Fl.* v. *p.* 349. *Kunze. Myc. Steft. t.* 2, *f.* 22. *Torula fructigena. Pers. Obs. t.* 1, *f.* 7. *Corda.* ii. *f.* 34.

On decayed pears, apples, plums, &c. [United States.]

"There is a distinct hemisphœric black stroma resembling a *Sclerotium*. Cream coloured, greyish or fawn-coloured."—*M. J. B.*

1813. Oidium fasciculatum. *Berk.* "Fasciculate Oidium."

Filaments branched, somewhat fasciculate, erect, forming spreading tufts, white at first, at length of a fine glaucous hue. *Berk. Eng. Fl.* v. *p.* 349. *Acrosporium fasciculatum. Grev. Fl. Ed. p.* 469.

On putrefying oranges.

"Commencing at first in minute, distinct, pulverulent spots, which speedily become confluent and deep glaucous."—*Grev.*

1814. Oidium porriginis. *Mont. M.S.S.* "Porrigo Oidium."

Mycelium flexuous, simple, branched or forked, without septa; spores ovoid, or triangular or quadrilateral, with the angles rounded, variable.—*B. & Br. Ann. N.H. no.* 546. *Achorion Schœnleinii. Remate in Robin. t.* 3, *f.* 10. *Fox, skin diseases* 1863, *t.* i. *f.* 1. *Kuchenmeister t.* 3, *f.* 6.

On *Porrigo lupinosa.*

1815. Oidium favorum. *B. & Br.* "Honey-comb Oidium."

Flocci erect, septate; spores yellow, short, subcylindrical.—*Ann. N.H. no.* 762, *t.* 16, *f.* 14.

On honey-comb.

Flocci erect, white, septate, and slightly torulose below; above bearing a few short cylindrical yellow spores. These spores when fallen seem to acquire a septum, and then to be gradually attenuated at either end. A new septum is then formed in either division constituting an irregularly fusiform body.—*B. & Br.*

1816. Oidium æquivocum. *B. & Br.* "Equivocal Oidium."

Tufts inconspicuous to the naked eye; flocci of spores, erect, simple; spores elongated, apiculate at each end, diaphanous, whitish.—*Ann. N.H. no.* 821. *Torula æquivoca. Corda.* ii. *t.* 9. *f.* 37.

On *Polyporus Schweinitzii.*

1817. Oidium concentricum. *B. & Br.* "Concentric Oidium."

Tufts delicate, maculæform, rounded, scattered, sometimes confluent; flocci erect; spores straight, large, fusiform, greyish-white.—*B. & Br. Ann. N.H. no.* 547. *Cylindrosporium concentricum. Ung. Exan. t.* 2, *f.* 9. *Fusisporium urticæ. Desm. exs. no.* 230. *Ann. Sc. Nat.* (1838), x. *p.* 309.

On leaves of various plants.

Variable. In all the forms we believe that the threads protrude through the stomata. Amongst the speres some occur which are large and uniseptate. It is possible that after the speres fall they may increase in size.—*B. & Br.*

Oidium monilioides. *Lk.* See *Erysiphe graminis.*

Oidium tuckeri. *B. Gard. Chron.* 1847, *p.* 779. *Ann. N.H. no.* 544.

Oidium abortifaciens. *B. Ann. N.H. no.* 545. *Ergotetia abortifaciens Quekett.* See *Claviceps purpurea.*

Oidium balsamii. *Mont. B. & Br. Ann. N.H. no.* 763. *Gard. Chron. Ap.* 15, 1854, on *Verbascum nigrum* and strawberries.

Oidium erysiphoides. *Fr.*

Oidium leucoconium. *Desm. Berk. exs. no.* 100. See *Sphærotheca pannosa.*

These are all conidiophorous conditions of other fungi.

Gen. **237.** **STYSANUS,** Corda.

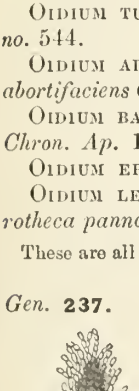


Fig. 272.

Stem erect, carnoso-cellulose, apex expanded into a hemispherical or cylindrical head; spores simple, apiculate at each end, connate in simple or branched moniliform threads.—*Corda. Icon.* i. *p.* 22. (*Fig.* 272.)

1818. Stysanus stemonitis. *Corda.* "Clavate Stysanus."

Gregarious; stem simple, slender, brown-black, fibrous, ending above in a cylindrical head of spores; threads of spores slightly branched, glaucous; spores oval, concatenate, glaucescent, diaphanous, often with a solitary nucleus.—*Corda. Icon.* i. *f.* 283. *Fckl. exs. no.* 175. *Periconia stemonitis Pers. Syn. t.* 3, *f.* 15.

On rotten sticks, dung, &c.

To the naked eye very like a small *Stemonitis*. The stem is compounded of distinct parallel, septate threads. (*Fig.* 272.)

Gen. **238.** **MONILIA**, Hill.

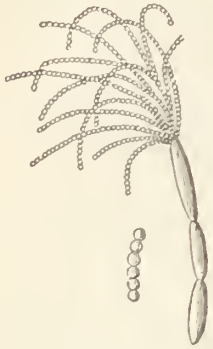


Fig. 273.

Flocci erect, jointed; head none; bearing fasciculate necklaces of spores at their apices.—*Berk. Outl. p.* 351. (*Fig.* 273.)

1819. Monilia fasciculata. *Corda.* "Fasciculate Monilia."

Grey, scattered, gregarious, simple; heads of spores lax, somewhat drooping; spores moniliform.—*Berk. Outl. p.* 351. *Briarea elegans. Corda. St.* iii. *t.* 6. *Monilia penicillata. Eng. Fl.* v. *p.* 344. *Grev. t.* 32.

On dead grass.

Dark grey, flocci articulate, constricted at the articulations, head drooping in consequence of the weight of the spores.—*Eng. Fl.* (*Fig.* 273.)

1820. Monilia racemosa. *Purt.* "Racemose Monilia."

Flocci cæspitose, branched in a racemose manner; chains of sporidia lateral and terminal, ternate.—*Berk. Eng. Fl.* v. *p.* 345. *Monilia cæspitosa. Purt.* iii. *t.* 34. *Mucor cæspitosus. Bolt. t.* 132, *f.* 2. *Aspergillus terrestris. Mich. t.* 91, *f.* 4.

On decaying substances.

Gen. **239.** **DACTYLIUM**, Nees.

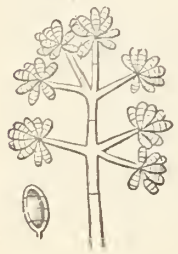


Fig. 274.

Flocci erect, jointed, branched, bearing at the tips of the branchlets, either scattered or in tufts, septate spores.—*Berk. Outl. p.* 351. (*Fig.* 274.)

1821. Dactylium pyriferum. *Fr.* "Pear-seeded Dactylium."

Flocci aggregate, white, here and there branched; sporidia pyriform, septa evanescent.—*Berk. Eng. Fl.* v. *p.* 345.

On decaying stems of herbaceous plants.

"Forming little white confluent tufts; flocci very slightly branched; sporidia often lateral, shaped exactly like a grape seed, the upper swollen portion filled with a granulate mass, the lower pellucid, and apparently solid." *M.J.B.*

1822. Dactylium tenellum. *Fr.* "Small Dactylium."

Flocci aggregate, white, fertile flocci branched, somewhat verticillate; spores quaternate, obovate, septate.—*Fr. S.M.* iii. *p.* 413. *B. & Br. Ann. N.H. no.* 536.

On moss. Marsh. Dundee.

A small and beautiful species, scarcely visible to the naked eye.

1823. Dactylium macrosporum. *Fr.* "Large-spored Dactylium."

Flocci aggregate, white and rose-coloured; branchlets of the fertile flocci very short, sub-verticillate, ending in obovate-cylindric, subternate, now and then septate spores.—*Fr. S.M.* iii. *p.* 414. *Eng. Fl.* v. *p.* 345. *Sturm. t.* 50.

On the ground, amongst moss, &c. [Low. & Mid. Carolina.]

1824. Dactylium sphærocephalum. *Berk.* "Round-headed Dactylium."

White; hyphasma thin, decumbent; fertile flocci erect, more or less ternate above, heads subglobose, 10-12 spored; spores oblong, very shortly pediccllate, 3-septate.—*Ann. N.H. no.* 243. *t.* 14, *f.* 27.

On dead twigs of ivy. Lambley, Norths.

Forming a thin white stratum, with the heads visible to the naked eye; hyphasma decumbent, branched, articulated; fertile flocci erect, articulated, naked below, above branched in a more or less ternate manner; branchlets slightly swollen at the base, attenuated above; spores forming subglobose heads, attached by very short peduncles, oblong-elliptic, triseptate. White in every stage of growth, by which it is distinguished, and by the large heads of distinctly septate spores.—*M.J.B.* (*Fig.* 274.)

1825. Dactylium dendroides. *Fr.* "Tree-like Dactylium."

Flocci aggregate, very much branched, white, branchlets racemose; spores terminal, obovate-cylindrical, septate.—*Fr. S.M.*

iii. *p.* 414. *Eng. Fl.* v. *p.* 345. *Quekett Journ.* 1870, *t.* 4. *Tul. Carp.* iii. *t.* 5, *f.* 1-15. *Mucor dendroides, Bull. t.* 504, *f.* 9.

On agarics. Common. [Mid. Carolina.]

The sporidia are very rarely septate.—*M.J.B.*
Tulasne records this as a state of *Hypomyces rosellus.*

1826. Dactylium obovatum. *Berk.* "Obovate Dactylium."

White, pulvinate; flocci very slender, simple; spores obovate, apical, often binate, uniseptate.—*Ann. N.H. no.* 242, *t.* 14, *f.* 26.

On willow twigs. King's Cliffe.

Forming minute white tufts, springing up about the ostiola of some *Sphæria.* Flocci erect, simple, not articulated, bearing at their apices one or two broadly obovate uniseptate, shortly pedicellate spores. It differs from *D. roseum* in its spores not being constricted, and the absence of any tint of rose-colour.—*M.J.B.*

1827. Dactylium roseum. *Berk.* "Rosy Dactilium."

Flocci branched, cæspitoso-intricate, covering the rose coloured, oblong, uniseptate spores.—*Ann. N.H. no.* 242. *Trichothecium roseum, Fr. S.M.* iii. *p.* 427. *Grev. t.* 172. *Eng. Fl.* v. *p.* 348. *Berk. exs. no.* 99. *Cooke exs. no.* 354.

On decaying plants. Common. [United States.]

Dactylium tenuissimum. *Berk. Trans. Hort. Soc.* i. *t.* 4, *f.* 20, 21. *Ann. N.H. no.* 537. Undoubtedly a state of *Fusarium Solani-tuberosi.* Desm.

Gen. **240.** **CYLINDRIUM,** Bonorden.

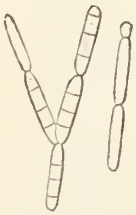


Fig. 275.

Flocci rudimentary, supporting moniliform threads, which are sometimes forked, breaking up into septate spores.—*Bon. Myc. p.* 34.

This genus differs from *Oïdium* in the septate spores. *(Fig.* 275.*)*

1828. Cylindrium septatum. *Bon.* "Septate Cylindrium."

Effused, white; spores attached end to end, and sometimes forked, cylindrical, obtuse, hyaline, triseptate.—*Bonorden Myc. f.* 16. *B. & Br. Ann. N.H. no.* 954.

On decayed wood.

Forming a white bloom on the matrix. *(Fig.* 275.*)*

Gen. **241.** **FUSIDIUM,** Link.

Fig. 276.

Floeci coloured, very delicate, evanescent; spores straight, fusiform.—*Berk. Outl. p.* 351. (*Fig.* 276.)

1829. **Fusidium griseum.** *Lk.* "Grey Fusidium."

Spot-like; floeci very delicate, evanescent; spores fusiform, straight, greyish-white.—*Sturm. t.* 17. *Grev. t.* 102, *f.* 1. *Cooke exs. no.* 198. *Fusisporium griseum. Berk. exs. no.* 321. *Fr. S.M.* iii. *p.* 447. *Eng. Fl.* v. *p.* 352.

On dead leaves. Common.

1830. **Fusidium flavo-virens.** *Fr.* "Yellow Fusidium."

Spot-like; floeci very delicate, evanescent; spores aggregate, fusiform, straight, yellow-green.—*Ditm. Sturm. t.* 18. *Grev. t.* 102, *f.* 2. *Cooke exs. no.* 245. *Fusisporium flavo-virens, Fr. S.M.* iii. *p.* 446. *Eng. Fl.* v. *p.* 351. *Berk. exs. no.* 213.

On dead leaves. Common.

1831. **Fusidium album.** *Desm.* "White Fusidium."

Tufts small, scattered, white, sometimes confluent; floeci few, evanescent; spores ellipsoid or fusiform, minute, white.—*Desm. Ann. Sc. Nat.* 1838, x. *p.* 309. *Desm. exs. no.* 229. *Moug. exs. no.* 894. *Ann. N.H. no.* 248.

On dry, green leaves of oak. Melton, Norths. Shere, Surrey.

Gen. **242.** **SPOROTRICHUM,** Link.

Fig. 277.

Floeci ascending, tufted, septate; spores simple, scattered, at first concealed.—*Berk. Outl. p.* 352. (*Fig.* 277.)

It may be doubted whether there are any genuine species of this genus, whose characters are very uncertain. They are mostly conidiiferous states of other plants.—*M.J.B.*

1832. Sporotrichum chlorinum. *Lk.* "Yellow-green Sporotrichum."

Erect, intricate; flocci dense, very soft, simple and branched; spores heaped together, globose, yellow-green.—*Link. Sp.* i. *p.* 17. *Fr. S.M.* iii. *p.* 421. *Eng. Fl.* v. *p.* 346.

On dry leaves. Glasgow.

1833. Sporotrichum aurantiacum. *Grev.* "Orange Sporotrichum."

Tufts of a reddish orange, filaments very slender, much entangled; spores globose, extremely minute.—*Grev. Wern. Trans.* iv. *t.* 5, *f.* 4. *Eng. Fl.* v. *p.* 347.

On dung, &c.

"Tufted, of a beautiful orange colour, which acquires a reddish tinge with age. Tufts generally about a line in breadth, but sometimes almost confluent. Threads very fine and much entangled."—*Grev.*

1834. Sporotrichum sulphureum. *Grev.* "Sulphury Sporotrichum."

Flocci forming minute tufts, at length evanescent; spores minute, globose, heaped together, sulphur-yellow.—*Grev. t.* 108, *f.* 2. *Wern. Trans.* iv. *f.* 3. *Eng. Fl.* v. *p.* 347. *Fr. S.M.* iii. *p.* 423. *Berk. exs. no.* 211.

In cellars, on corks, &c. Common. [Mid. Carolina.]

"Tufted, roundish, of a pleasant yellow-colour, varying in shade according to age. Tufts ½-2 lines in breath. Threads remotely jointed, loosely interwoven, and occasionally branched."—*Grev.* *(Fig. 277.)*

1835. Sporotrichum laxum. *Link.* "Lax Sporotrichum."

Very delicate, lax; flocci few, white, as well as the oval spores.—*Link. Sp.* 1, *p.* 1. *Nees. f.* 45. *Eng. Fl.* v. *p.* 347. *S. minutum. Grev. t.* 108, *f.* 1. *Wern. Trans.* iv. *f.* i.

On various substances. Common. Easily recognised by its oval spores.

"Small, very white, tufted, sometimes crowded together. Tufts about ½ line in diameter. Threads under the microscope loosely interwoven, seldom and irregularly branched, and somewhat attennated."—*Grev.*

1836. Sporotrichum inosculans. *Berk.* "Dark Sporotrichum."

Effuse, dark umber-brown, forming a velvety crust; flocci erect, virgate; spores minute, elliptic.—*Eng. Fl.* v. *p.* 346.

On *Thelephora.* Appin.

Sporotrichum geochroum. *Eng. Fl.* v. *p.* 346, is the conidiiferous condition of some *Hypoxylon*.—*M.J.B.*

1837. Sporotrichum fenestrale. *Ditm.* "Window-glass Sporotrichum."

Tufted, very minute; flocci much branched, centrifugal, decumbent, septate, whitish; spores globose, dingy.—*Ditm. Sturm.* iii. *t.* 1.

On glass. Common.

Gen. **243.** **ZYGODESMUS,** Corda.

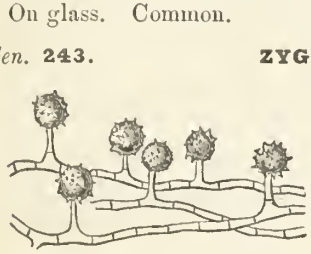


Fig. 278.

Flocci short, erect, springing from the creeping sterile threads; joints here and there cut half way through.—*Berk. Outl. p.* 352. (*Fig.* 278.)

1838. Zygodesmus fuscus. *Corda.* "Brown Zygodesmus."

Crustaceous, effused, velvety, brown; flocci branched, septate, clear brown, sporidiferous, ramuli erect, short; spores globose, aculeate, yellow-brown.—*Corda.* iv. *f.* 81. *Curr. Micr. Journ.* v. *p.* 127, *t.* viii. *f.* 41.

On decayed wood and fallen branches. [United States.]

Easily recognised by the reddish-brown color of the filaments, and by the echinulate spores.—*Curr.*

Gen. **244.** **VIRGARIA,** Nees.

Fig. 279.

Flocci erect, dichotomous, virgate, black, septate; spores minute, scattered over the branches.—*Berk. Outl. p.* 352.

(*Fig.* 279.)

1839. Virgaria nigra. *Fr.* "Black Virgaria."

Flocci erect, dichotomously virgate, black, attenuated at their apices; spores globose, of the same colour.—*Nees. f.* 52. *Sporotrichum nigrum, Eng. Fl.* v. *p.* 346. *Botrytis nigra, Grev. t.* 274.

On dead trunks, &c. (*Fig.* 279.)

Gen. **245.** **BOLACOTRICHA,** B. & Br.

Fig. 280.

Flocci unbranched, jointed, curled at the top; spores large, globose, shortly pedicellate, conglomerated towards their base.—*Berk. Outl. p.* 353. *Ann. N.H. no.* 506. (*Fig.* 280.)

1840. Bolacotricha grisea. *B. & Br.* "Grey Balocotricha."

Effused, grey; flocci thicker below, flexuous, tips curved, irregularly articulated; spores conglomerate, globose.—*Ann. N.H. no.* 506, *t.* 5, *f.* 4.

On dead cabbage stalks, &c.

Tufts resembling strongly those of *Myxotrichum chartarum*, but rather larger, forming large effused, grey patches; threads thicker at the base, flexuous, pale purple under the microscope, strongly curved at the tips like little tendrils, sparingly articulate at irregular distances, or perfectly continuous; spores conglomerate, large, 5-8 times as broad as the threads, globose; episporium thin; endochrome strongly granulated. (*Fig.* 280.)

Gen. **246.** **MYXOTRICHUM,** Kunze.

Fig. 281.

Flocci branched, bearing towards their base little conglomerated masses of spores.—*Berk. Outl. p.* 353. (*Fig.* 281.)

1841. Myxotrichum chartarum. *Kze.* "Paper Myxotrichum."

Forming little patches, dark grey, globose; floeci cæspitose, decumbent, divarieately branched, erect, emergent, uncinate at the apex; spores in clusters at the tips of the branches, subglobose, at first coneatenate.—*Kunze M.H.* ii. *p.* 110, *t.* 2, *f.* 1. *B. & Br. Ann. N.H. no.* 121. *Berk. exs. no.* 207. *Corda.* vi. *f.* 23. *Sturm.* vi. *t.* 40.

On straw, &c. (*Fig.* 281.)

1842. Myxotrichum deflexum. *Berk.* "Deflexed Myxotrichum."

Forming little patches, consisting of grey downy balls; flocci radiating, branched; branches opposite, deflexed, attenuated upwards; branchlets few, short, acute; spores basal, in patches, oblong-elliptic.—*Ann. N.H. no.* 122, *t.* 8, *f.* 9.

On damp paper and wood.

Forming little patches, consisting of little grey downy balls; from these arise a number of radiating threads, furnished with a few opposite deflexed branches, which decrease in size from the base upwards, so as to give the appearance of a little grove of larches. The branches have occasionally a few short acute branchlets, which are often alternate; spores collected in patches about the base of the threads, oblong-elliptic. Distinguished from *M. chartarum* by the absence of the curved apices of the flocci, by the rectangular and deflexed branches, and by the main threads being generally simple, or if branched not trifid or subcymose.

Gen. **247. GONYTRICHUM,** Nees.

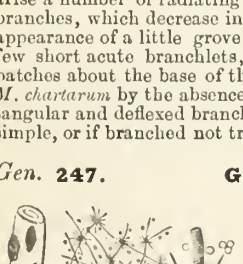


Fig. 282.

Flocci branched, here and there bearing knots, from which spring the verticillate, fertile, septate threads, crowned at their tips with a globose mass of spores.—*Berk. Outl. p.* 353. (*Fig.* 282.)

1843. Gonytrichum cæsium. *Nees.* "Grey Gonytrichum."

Flocci tufted, intricate, bluish-grey, nodose at the joints, from which spring the branches and branchlets; spores conglobated, globose, pellucid.—*Nees. Nov. A.N.C.* ix. *p.* 244, *f.* 14. *Corda.* ii. *f.* 51. *Myxotrichum cæsium. Fr. S.M.* iii. *p.* 348. *Eng. Fl.* v. *p.* 335.

On fallen branches. Apethorpe, &c.

Forming dense greyish tufts, at length black, consisting of very much branched fibres; branches patent, nodose at their origin, and there furnished with numerous globose spores.—*M. J. B.*

1844. Gonytrichum fuscum. *Corda.* "Brown Gonytrichum."

Tufts pulvinate, brown; flocci fragile, blackish-brown, opaque; branches subulate; spores scattered, white, globose.—*Corda.* i. *f.* 160. *Cooke exs. no.* 348. *B. & Br. Ann. N.H. no.* 1054.

On rotten sticks. Aug. (*Fig.* 282.)

Gen. **248.** **MENISPORA,** Pers.

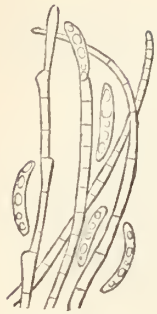


Fig. 283.

Flocci erect, jointed; spores heterogeneous, aerogenous, fusiform, or cylindrical, simple, at first joined together in bundles, then irregularly scattered over the flocci.—*Berk. Outl. p.* 353.

(*Fig.* 283.)

1845. Menispora lucida. *Corda.*
"Shining Menispora."

Tufts minute, brown; flocci erect, lax, unequally septate or nodulose, brown below, semi-pellucid, white above; spores fusiform, somewhat curved, obtuse, white.—*Corda.* i. *t.* 4, *f.* 223. *B. & Br. Ann. N.H. no.* 530.

On decayed wood. Jan. Lambley, Notts. (*Fig.* 283.)

1846. Menispora ciliata. *Corda.* "Fringed Menispora."

Tufts somewhat effused, olivaceous, tomentose; flocci erect, dichotomous, lax, irregularly septate, sometimes incurved, olive-brown, pellucid; spores fusiform, colourless, furnished at each extremity with a long slender cilium.—*Corda.* i. *f.* 222. *Rabh. F.E. no.* 881.

On sticks. Dec. Jan. Batheaston.

Gen. **249.** **CHÆTOPSIS,** Grev.

Fig. 284.

Flocci erect, jointed, subulate, below branched and verticillate, above simple and flagelliform; spores cylindrical, springing from the tips of the branchlets.—*Berk. Outl. p.* 353.

(*Fig.* 284.)

1847. Chætopsis Wauchii. *Grev.*
"Wauch's Chætopsis."

Flocci aggregate, brown-black, quite simple, above; spores oblong-cylindrical, grey; conglomerated just above the base upon very short

branchlets.—*Grev. t.* 236. *Corda.* i. *f.* 242. *Dematium griseum. Pers. M.E.* i. *p.* 15. *Eng. Fl.* v. *p.* 337. *Fr. S.M.* iii. *p.* 364.

On decayed wood.

Easily recognised by the greyish cylindrical masses of spores, just above the base of the threads; spores sometimes six times as long as broad, and very slightly, but decidedly curved with a round, pellucid globule in the centre; branchlets very obscure, if not altogether wanting; several flocci frequently pass through the same heap of spores. (*Fig.* 284.)

Gen. **250.** **ACREMONIUM,** Link.

Fig. 285.

Flocci creeping, jointed, beset with short patent branches, each of which bears a spore.—*Berk. Outl. p.* 353.
(*Fig.* 285.)

1848. **Acremonium verticillatum.** *Lk.* "Verticillate Acremonium."

White; fertile branchlets whorled; spores ovate.—*Link. Sp.* i. *p.* 44. *Grev. t.* 124, *f.* 2. *Fr. S.M.* iii. *p.* 425. *Eng. Fl.* v. *p.* 347.

On dead wood and trunks. Spring. Edinburgh.
(*Fig.* 285, *b. magnified.*)

1849. **Acremonium alternatum.** *Lk.* "Alternate Acremonium."

White; fertile branchlets alternate; spores globose.—*Link. Sp.* i. *p.* 74. *Sturm. t.* 2. *Eng. Fl.* v. *p.* 347. *Fr. S.M.* iii. *p.* 425.

On decaying leaves. Autumn. Stibbington, Hunts.
(*Fig.* 285, *a. magnified.*)

1850. **Acremonium fuscum.** *Schm.* "Brown Acremonium."

Olive-brown, fertile branchlets opposite or alternate; spores globose.—*Schmidt. M.H.*, i. *t.* 2, *f.* 23. *Grev. t.* 124, *f.* 1. *Eng. Fl.* v. *p.* 347.

On dead wood and sticks. Autumn. Near Edinburgh.

Gen. **251.** **GONATOBOTRYS**, Corda.

Fig. 286.

Flocci erect, jointed; articulations swollen in the middle, and bearing obovate spores on little spicules.—*Berk. Outl. p.* 354.
(*Fig.* 286.)

1851. Gonatobotrys simplex. *Corda.*
"Simple Gonatobotrys."

White; tufts lax, minute, arachnoid; flocci simple, long, straight, erect, then nodding; heaps of spores globose; spores ovate, apiculate at the base.—*Corda. Muced. t.* 5. *Berk. Outl. p.* 354.

On fruit of *Tamus*, &c. (*Fig.* 286.)

Gen. **252.** **CLONOSTACHYS**, Corda.

Fig. 287.

Flocci jointed above; branches and branchlets quaternate, subcapitate, clothed with spores, forming distinct spikes.—*Berk. Outl. p.* 354. (*Fig.* 287.)

1852. Clonostachys araucaria. *Corda.*
"Compact Clonostachys."

White, arachnoid; branches fastigiate; spikes cylindrical; spores oblong, obtuse, white.—*Corda. Muced. t.* 15. *Curr. Micr. Journ.* v. *p.* 126. *Stachylidium araucarium*, *Bon. Handb. t.* vii. *f.* 155.

On bark of small twigs.

Remarkable for the peculiar arrangement of the spores, which form long dense spikes like ears of corn. —*Curr.* (*Fig.* 287.)

Gen. **253.** **BOTRYOSPORIUM,** Corda.

Fig. 288.

Flocci slightly branched, bearing patent branchlets, each of which is surmounted by a few spicules, bearing a head of spores.—*Berk. Outl. p.* 354. (*Fig.* 288.)

1853. Botryosporium pulchrum. *Corda.* "Beautiful Botryosporium."

Tufts broadly expanded, lax, white, farinose; flocci simple or dichotomous, lax; racemes very long, subcylindrical; heads of spores globose, quinate; spores ovate, colourless.—*Corda. Muced. t.* 19. *Curr. Micr. Journ.* v. *p.* 117. *Cooke exs. no.* 353.

On herbaceous plants. Oct.

Forms large white mealy patches. The flocci are very delicate, forming a woolly looking mass, and the spores are arranged in four or five compact globular masses at the extremities of short ramuli, which are alternate upon the main threads.—*Curr.* (*Fig.* 288.)

1854. Botryosporium diffusum. *Corda.* "Diffuse Botryosporium."

Fertile flocci branched, white; fertile branchlets scattered, bearing quaternate spores; spores at length collected at their apices in globular masses.—*Corda. Sturm. t.* 5. *Stachylidium diffusum*, *Fr. S.M.* iii. *p.* 392. *Eng. Fl.* v. *p.* 341. *Botrytis diffusa*, *Grev. t.* 126, *f.* 2. *Wern. Tr. p.* 72, *f.* 7.

On decayed herbaceous plants, especially potatoes.

Forming loose tufts, 3-4 lines high; branchlets at first bearing quaternate spores; they are usually crowned with globular masses of globose, or sometimes elliptic spores.—*M.J.B.*

Gen. **254.** **PAPULASPORA,** Preuss.

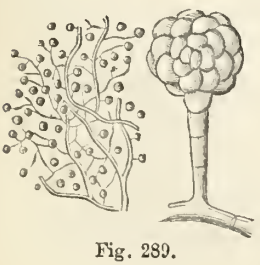


Fig. 289.

Flocci decumbent, jointed, producing short erect branches, each of which produces a cellular head studded with erect spores, the endochrome of which is bipartite or quadripartite.—*Berk. Outl. p.* 354. (*Fig.* 289.)

1855. Papulaspora sepedonioides. *Preuss.* "Red-headed Papulaspora."

Hyphasma effused, creeping, branched, septate, pellucid, woolly, interwoven; ramuli pedicelliform, ascending, septate, terminating in a globose red cellular body, studded with oblong spores.—*Sturm.* vi. *t.* 45. *Ann. N.H. no.* 761*.

On rice paste. Aug. King's Cliffe.

This beautiful mould consists of decumbent, articulate, colourless threads, which produce short, erect branches, each surmounted by a large red cellular body about ·0018 in. in diameter. The heads studded with oblong erect spores ·0004-·0006 in. long, with their endochrome bipartite. If these are truly spores, each individual head presents nearly the structure of an *Epicoccum*.—*B. & Br.* (*Fig.* 289.)

Gen. **255.** **RHOPALOMYCES,** Corda.

Fig. 290.

Flocci free, septate, swelling at the tip into an areolate head, each cell of which bears a spicule, surmounted by a spore.—*Berk. Outl. p.* 354.

(*Fig.* 290.)

1856. Rhopalomyces pallidus. *B. & Br.* "Pallid Rhopalomyces."

Pale fawn colour; fertile flocci furcate, flexuous; spores minute, elliptic. *B. & Br. Ann. N.H. no.* 504, *t.* 5, *f.* 2.

On decayed Russian matting. Feb. King's Cliffe.

Creeping widely over the matrix, on which it forms a mealy pale fawn-coloured ragged stratum; hyphasma delicate, consisting of very fine threads, which produce little branches, swelling out suddenly, and rising at once, or creeping along and giving off fertile flocci. These are rather thick, irregular in outline, once or twice forked; heads globose, or nearly so, beautifully areolate, each areola producing in its centre a short delicate spicule, surmounted with a minute elliptic spore.—*B. & Br.*

1857. Rhopalomyces candidus. *B. & Br.* "White Rhopalomyces."

White; hyphasma very sparing; fertile flocci straight, simple; heads subglobose; spores minute, elliptic.—*Ann. N.H. no.* 505, *t.* 5, *f.* 3.

On a mixture of dung, earth and hops. Feb. King's Cliffe.

Extremely minute and delicate, pure white; hyphasma creeping, but very sparing; fertile flocci erect, even; heads globose or somewhat obovate, beautifully areolate; spores minute, elliptic. Differing from *R. pallidus* in colour, and the simple straight flocci; the heads are somewhat larger.—*B. & Br.* (*Fig.* 290.)

Order XXII. SEPEDONIEI.

Mycelium floccose; fertile flocci obscure, and in consequence the spores rest upon the matrix.

The spores are the principal element in this order, which approaches *Coniomycetes*.

Spores large, globose	*Sepedonium*.
Spores fusiform, curved, then septate—	
Forming a gelatinous mass . . .	*Fusisporium*.
Spores septate—	
Apparently attached to the matrix .	*Epochnium*.
Spores simple—	
At first covered by persistent flocci .	*Psilonia*.

Gen. **256.** **SEPEDONIUM,** Link.

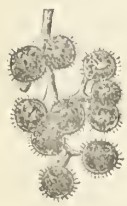


Fig. 291.

Spores large, simple and globose, or appendiculate.—*Berk Outl. p.* 355. (*Fig.* 291.)

1858. Sepedonium chrysospermum. *Lk.* "Yellow Sepedonium."

Flocci fleecy, dense, white; spores golden yellow, not appendiculate.—*Fr. S.M.* iii. *p.* 438. *Eng. Fl.* v. *p.* 350. *Bull. t.* 504, *f.* 1, *t.* 476, *f.* 4. *Sow. t.* 378, *f.* 13. *Nees. f.* 38. *Grev. t.* 198. *Chev. t.* 3 *f.* 16. *Kunze. exs. no.* 223. *Bisch. f.* 3806. *Bon. t.* 4, *f.* 103. *Fckl. exs. no.* 141.

On decaying fungi. Common. [United States.]

Frequently penetrating the whole fungus, and converting it into yellow dust; spores globose, echinulate. Tulasne regards this as the conidioid condition of a *Sphæria (Hypomyces)*, not yet recorded in Britain (*Tul. Carp.* iii. *p.* 49.). (*Fig.* 291.)

1859. Sepedonium roseum. *Fr.* "Rosy Sepedonium."

Flocci fleecy, white; spores appendiculate, red.—*Fr. S.M.* iii. *p.* 438. *Eng. Fl.* v. *p.* 350. *Ann. N.H. no.* 132. *Tul. Carp.* iii. *p.* 44.

On decaying fungi.

More superficial than *S. chrysospermum*. Spores larger, globose, with a broad pellucid border, and a thick blunt appendage. Tulasne states that this constitutes the conidia of *Hypomyces Linkii*, the perfect condition of which has not yet been found in Britain.

Gen. **257. FUSISPORIUM,** Link.

Fig. 292.

Spores elongated, fusiform, curved, at length septate, forming a gelatinous mass.—*Berk. Outl. p.* 355. (*Fig.* 292.)

1860. Fusisporium betæ. *Desm.* "Beet Fusisporium."

Orange, effused in a tremellose crust; flocci dense, branched, scarcely septate; spores very copious, fusiform, delicate, slightly curved, obscurely septate.—*Ann. Sc. Nat.* xix. *t.* 18, *f.* 2. *Berk. Ann. N.H. no.* 246. *Desm. exs. no.* 305. *Bon. t.* 12, *f.* 248. *Fckl. exs. no.* 214.

On decaying beet root. Apethorpe.

1861. Fusisporium georginæ. *Berk.* "Dahlia Fusisporium."

Effused, gelatinous, reddish, roseate, or intense orange, thick; spores fusiform, acute at each extremity, with several oil globules.—*Klotsch. exs. no.* 186. *Berk. Ann. N.H. no.* 247. *F. rhizophilum. Corda.* ii. *f.* 15.

On roots of Dahlia. Apethorpe.

Doubtfully distinct from *F. betæ*.—*Desm.*

1862. Fusisporium udum. *Berk.* "Moist Fusisporium."

Broadly effused, tremelloid; dirty orange; flocci of the hyphasma decumbent, slightly branched; spores long, curved, 3-5 septate, acute at either end.—*Ann. N.H. no.* 245, *t.* 14, *f.* 28.

On trees in spring.

Forming a broad tremelloid mass, wet with the overflowing sap, composed of slightly branched decumbent filaments, some of which are closely septate, others contain a series of globose nuclei, while others are quite simple; spores 3-5 septate, elongated, curved, acute at either end, the contents of the articulations orange. In age the septa are absorbed, and there is a row of irregular nuclei.—*M. J. B.*

1863. Fusisporium roseolum. *Steph.* "Potato Fusisporium."

Rose-red; floccl short; spores curved, elongated, 3-6 septate.—*Berk. Ann. N.H. no.* 549.

On decayed potatoes. Bristol.

Of a delicate rose-red, forming thin floccose patches; fertile threads short; spores curved, elongated, slightly obtuse, 3-6 septate, often slightly projecting at each dissepiment. It approaches *Dactylium*, but the spores are those of *Fusisporium*.—*M. J. B.*

1864. Fusisporium fæni. *B. & Br.* "Hay Fusisporium."

Hyphasma sparing, fertile floccl very short; spores oblong, straight, obtuse, 1-2 septate.—*Ann. N.H. no.* 550.

On hay. Dec. Apethorpe.

Orange-red, spreading in wide patches many feet in width; hyphasma creeping, sparingly articulate; fertile flocci very short; spores oblong, obtuse at either extremity, 1-2 septate. Differing from all other species in the character of the spores.—*M. J. B*

1865. Fusisporium bacilligerum. *B. & Br.* "Long-spored Fusisporium."

Greyish white; hyphasma obsolete; spores very long, 5-7 septate, attenuated below, apex sub-clavate.—*Ann. N.H. no.* 548. *Rabh. F.E. no.* 177.

On leaves of *Alaternus*. West of England.

Occupying the centre of little brown spots; hyphasma obsolete; spores very long, hyaline, 5-7 septate, strongly attenuated below, obtuse, and slightly clavæform above, somewhat curved.—*M. J. B.*

1866. Fusisporium atrovirens. *Berk.* "Green-black Fusisporium."

Flocci effused, white; spores at first greyish-green, then green-black, strongly curved.—*Eng. Fl.* v. *p.* 351.

On onions. Summer. King's Cliffe.

Spores forming about the third of a circle, originating in little dot-like spots, with radiating flocci, crowned with a gelatinous greyish mass; these at length unite, and the whole of the centre is occupied by the spores, the border still increasing and quite fleecy, if meeting with any impediment; at length the whole is green-black, and the border obliterated. One cause of the mildew of onions.—*M. J. B.*

1867. Fusisporium aurantiacum. *Lk.* "Orange Fusisporium."

Flocci fleecy, white, at length evanescent; spores conglutinate, slender, slightly curved.—*Link. Sp.* i. *p.* 30. *Fr. S.M.* iii. *p.* 445. *Eng. Fl.* v. *p.* 351. *Nees. f.* 40 *B. Desm. exs. no.* 664. *Ung. Exan. t.* 2, *f.* 13. *Bisch. f.* 3804.

On decayed gourds, &c. [Low. Carolina.]

At first clothed with fleecy white, branched flocci, which spread beyond the mass of the spores, and at length vanish, leaving a tremelloid stratum; spores septate, septa evanescent. Sometimes commences in little dot-like gelatinous masses, which at length become confluent, without any mycelium. *M. J. B.*

1868. Fusisporium incarcerans. *Berk.* "Enclosed Fusisporium."

Pale rose, nestling in the sporangium or peristome of mosses; spores arcuate, slender, triseptate.—*Berk. Intell. Obs.* 1863, *p.* 11, *f.* 4.

On peristomes or in capsules of *Orthotrichum.*

The characters of this little parasite are not striking, and its specific distinction must rest partly on its peculiar habits, for the spores scarcely differ from those of one or two other species, they are about $\frac{1}{416}$ in. long, but by no means uniform in size.—*M. J. B.*

1869. Fusisporium (?) insidiosum. *Berk.* "Beaded Fusisporium."

White, mycelium creeping, producing subglobose tufts of short necklace-like simple or branched threads, each terminal joint of which bears a curved, fusiform, apiculate, 1-5 septate spore.—*Gard. Chron.* 1860, *p.* 480, *with a fig.*

On *Agrostis pulchella.*

"This species has threads very like those of *Ægerita.*" Spores (·002 in) ·05 m.m. long. Tufts very minute, scarcely visible without a lens. *(Fig.* 292, *tuft magnified.)*

1870. Fusisporium solani. *Mart.* "Woolly Fusisporium."

Rounded, irregular, tomentose, white; flocci branched; spores fusiform, curved, triseptate.—*Mart. Kart. Epid. t.* iii. *f.* 25, 30. *Periola tomentosa. Fr. S.M.* ii. *p.* 267. *Eng. Fl.* v. *p.* 226.

On potatoes.

The flocci are too much developed to be consistent with the characters of this order.

Gen. **258.** **EPOCHNIUM,** Link.

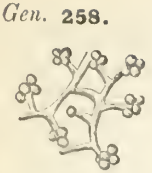


Fig. 293.

Sterile flocci creeping, fertile obsolete; spores septate, attached apparently to the matrix.—*Berk. Outl. p.* 356.

(*Fig.* 293.)

1871. **Epochnium macrosporoideum.** *Berk.* "Radiating Epochnium."

Flocci very slender, effused, irregularly branched; spores subglobose or oval, divided by radiating septa.—*Berk. Ann. N.H. no.* 131. *t.* 8, *f.* 14.

On dead twigs of *Ribes.* Aug. King's Cliffe.

Forming a thin slate-black stratum; flocci transparent, perfectly colourless under the microscope, apparently not septate, very slender, effused, irregularly branched, often anastomosing at right angles. From the tips or on very short lateral branches spring subglobose or oval colourless transparent vesicles, with a central nucleus; these by degrees are furnished within with obscure septa, at length they acquire when full grown a brown hue, and are from $\frac{1}{1500}$-$\frac{1}{2000}$ in. in diameter. They are then in general more or less globose, divided by septa into a few lobes, which are disposed in a radiating manner, like the berries of a mulberry. A few are furnished with a little apicular peduncle, but the greater part lose all trace of the point of attachment.—*M. J. B.*

Gen. **259.** **PSILONIA,** Fr.

Fig. 294.

Flocci persistent, joined into an erumpent mass, at first covering the simple spores.—*Berk. Outl. p.* 356. *Eng. Fl.* v. *p.* 352. (*Fig.* 294.)

1872. **Psilonia gilva.** *Fr.* "Reddish-grey Psilonia."

Tufts subrotund, compact, reddish-grey, inclining to brown; flocci intricate, twisted, mostly simple, covering the variously shaped spores.—*Fr. S.M.* iii. *p.* 451. *Eng. Fl.* v. *p.* 353. *Berk. exs. no.* 101.

On dead herbaceous stems ("felled oak."—*Eng. Fl.*)

Masses 1-2 lines broad, subinnate ; flocci very fine, curiously twisted together, external surface, finely tomentose, from their free apices. Spores fusiform (sometimes globose or oval), collected about the apices of the filaments.—*M. J. B.*

1873. Psilonia arundinis. *Desm.* "Reed Psilonia."

Tufts oblong, dense, pale rose-coloured; flocci fasciculate, intricate, simple; spores ovoid and oblong.—*Fr. S.M.* iii. *p.* 451. *Berk. exs. no.* 102. *Berk. Ann. N.H. no.* 35-551. *Desm. exs. no.* 460. *Ann. Sc. Nat.* 1830, *t.* 5, *f.* 1. *Chloridium festucæ. Corda. Anl. t. B. f.* 12, *no.* 4.

On dead leaves and stems of reeds and *Carices*. Feb.

Tufts evidently erumpent, oblong, linear, 1-2 lines long.

Psilonia nivea, Fr. is clearly an insect production.

1874. Psilonia discoidea. *B. & Br.* "Discoid Psilonia."

Pale fawn-colour, then brown; disc proliferous; spores oblong, margin discrete, rosy tan-colour.—*B. & Br. Ann. N.H.* 1866, *no.* 1150, *t.* 3, *f.* 8.

On rotten rails. Jan.—Feb. Wilts.

Whole plant 1-2 lines across, variously shaped, orbicular, elongated, flexuous, &c. In the early stage the disc is quite covered by the shaggy coat, which afterwards folds back or cracks, and leaves the stratum of spores naked, precisely as in *Myrothecium*. Spores oblong or, seen laterally, subcymbiform, (·00035 in.) ·009 m.m. long.—*B. & Br.*

Order XXII. TRICHODERMACEI.

Flocci covering the spores, and forming a kind of peridium, which at length vanishes in the centre.—*Berk. Outl. p.* 356.

Peridium more or less distinct—
- Stipitate.
  - Spores on the threads . . . . *Pilacre.*
- Sessile.
  - Spores in cavities . . . . . *Institale.*

Peridium spurious, indeterminate—
- Flocci even.
  - Spores spread over the disc . . . *Trichoderma.*
- Flocci constricted.
  - Spores collected in the centre . . *Arthroderma.*

Gen. 260. PILACRE, Fr.

Stem solid, cylindrical; head globose, composed of flexuous, branched, radiating threads; spores produced near the tips, forming a dusty mass.—*Berk. Outl. p.* 356. (*Fig.* 295.)

1875. Pilacre faginea. *B. & Br.* "Beech Pilacre."

Stem blackish, pruinose; head subglobose; spores broadly elliptic.—*Ann. N.H. no.* 380, *t.* 11, *f.* 5. *Onygena faginea, Fr. S.M.* iii. *p.* 209. *Kl. exs. no.* 1724. *Fckl. exs. no.* 1073.

On beech sticks. Aug. Spye Park, Wilts. [United States.]

Fig. 295. About 2 lines high; stem 1½ line high, pruinose, at length brown or blackish; head subglobose or turbinate, at first pruinose, umbilicate, or without trace of umbilicus; flocci branched, especially above, somewhat fastigiate, more or less flexuous; spores minute; broadly elliptic, with a distinct nucleus.—*M.J.B.*

1876. Pilacre Petersii. *B. & Curt.* "Hornbeam Pilacre."

Stem short, white; head large; flocci nearly straight.—*Ann. N.H. no.* 824. *Curt. exs. no.* 3811.

On hornbeam. Hainault Forest. [Alabama, U.S.]

Stem 2 lines high, white; head 1-2 lines or more across, threads anastomosing, far less flexuous than in *P. faginea*. Spores snuff-coloured, about (·0002 in.) ·005 m.m across. When fresh it has a smell like that of some *Hypericum*. In habit the species resembles a little *Nyctalis*.—*B. & Br.*

Gen. **261.** **INSTITALE**, Fr.

Stem none ; common mass containing many cavities filled with spores.—*Berk. Outl. p.* 357.

Institale effusa, *Fr. S.V.S. p.* 447. *B. & Br. Ann. N.H. no.* 756. See *Ptychogaster albus. Corda. ante. no.* 1104.

Trichoderma viride, *Pers. Grev. t.* 271. This is a state of *Hypocrea rufa*, Fr.

Gen. **262.** **ARTHRODERMA**, Currey.

Fig. 296.

Peridium spurious, indeterminate, roundish, composed of interwoven, strongly constricted, jointed flocci. Spores collected in the centre.—*Berk. Outl. p.* 357. (*Fig.* 296.)

1877. Arthroderma Curreyi. *Berk.* "Currey's Arthroderma."

Scattered or gregarious, globose or pulvinate ; flocci branched, jointed, torulose; spores brilliant yellow, spherical.—*Berk. Outl. v.* 357. *Quart. Micr. Jour.* ii. *p.* 240, *t.* ix. *f.* 6-8.

On dead leaves and sticks.

Division II. **SPORIDIIFERA.** *Sporidia in asci.*

V. Fertile cells seated on threads, not compacted into a hymenium . . . . . *Physomycetes.*
VI. Asci formed from the fertile cells of an hymenium . *Ascomycetes.*

Family VI. **PHYSOMYCETES.**

Threads free, or only slightly felted, bearing vesicles which contain indefinite sporidia.—*Berk. Outl. p.* 406.

Fertile cells bladder-shaped, scattered on the threads, which are not compacted so as to form a distinct hymenium. Sporidia indefinite, formed from the protoplasm of the cells.—*M.J.B.*

Threads felted, moniliform—
Sporangia irregular . . . . . *Antennariei.*
Threads free.
Sporangia terminal or lateral . . . . *Mucorini.*

Order XXIII. ANTENNARIEI.

Threads black, more or less felted, moniliform and equal in the same felt, bearing here and there irregular sporangia.—*Berk. Outl. p.* 406.

Threads mostly moniliform—
Spores concatenate . . . . . *Antennaria.*
Threads mycelioid, byssoid—
Spores simple . . . . . *Zasmidium.*

Gen. **263.** **ANTENNARIA,** Link.

Fig. 297.

Threads felted, black, articulated, often moniliform; walls of sporangia mostly cellular; spores chained together, immersed in gelatinous pulp. *Berk. Outl. p.* 406. (*Fig.* 297.)

1878 **Antennaria semiovata.** *B. & Br.* "Semi-ovate Antennaria."

Fertile flocci erect, short, branched; articulations torulose, even; pycnidia semi-ovate; peritheeia curved, acuminate.—*B. & Br. Ann. N.H. no.* 784, *t.* 16, *f.* 18.

On fronds of *Lastrea filix-mass.* Sept. Bath.

Clothing the leaves with dense matted felt. Barren threads creeping, often united into an irregular membrane, fertile, erect, generally slightly branched, but sometimes sub-dichotomous. It is difficult to say what is a species in this genus, which appears to present one form of fruit of *Capnodium.* —*B. & Br.*

Gen. **264.** **ZASMIDIUM,** Fr.

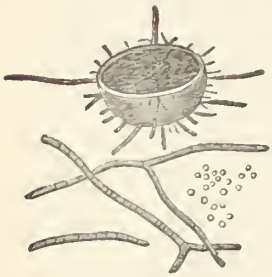


Fig. 298.

Sporangium thin, carbonaceous, but brittle, growing on a septate, byssoid, equal, mycelium. Mouth sub-umbilicate, spores simple.—*Berk. Outl. p.* 406. (*Fig.* 298.)

1879. **Zasmidium cellare.** *Fr.* "Cellar Fungus."

Mycelium very thick and abundant, lax, composed of septate flocci, olive-black; peridia globose, seated upon the threads.—*Berk. Outl. p.* 407. *Racodium cellare, Bisch. f.* 3700. *Fckl. exs. no.* 641. *Eng. Fl.* v. *p.* 324. *Moug. exs. no.* 790. *Grev. t.* 259. *Antennaria cellaris, Fr. S.M.* iii. *p.* 229. *Fibrillaria vinaria. Sow. t.* 432, 387, *f.* 3. *Dill. t.* 1, *f.* 12. *Nees. f.* 70. (*Fig.* 298.)

On corks, bottles, walls, &c., in cellars. Common.

Order XXIV. MUCORINI.

Threads free, bearing terminal or lateral sporangia.—*Berk. Outl. p.* 407.

Sporangia collapsing and dependent	*Ascophora.*
Sporangia bursting, not dependent	*Mucor.*
Sporangia at length indurated—	
Ejected	*Pilobolus.*
Not ejected	*Hydrophora.*
Sporangia delicate, perforated by the stem—	
Sporidia globose, mixed with radiating threads	*Endodromia.*
Sporangia splitting horizontally—	
Sporidia growing on the columella	*Sporodinia.*
Sporangia pierced by the threads; branches verticillate—	
Sporidia on the tips of the threads	*Acrostalagmus.*
Vesicles of separate branches conjugating—	
Producing a sporangium	*Syzygites.*
Flocci collected in a spongy globoso mass. Hypogæons—	
Vesicles globose	*Endogone.*

Gen. **265.** **ASCOPHORA,** Tode.

Fig. 299.

Sporangia collapsing, and at length hanging down over the fructifying apices like a hood. Fruit sometimes of two kinds. *Berk Outl. p.* 407. (*Fig.* 299.)

1880. Ascophora mucedo. *Tode.* "Common Ascophora."

Flocci simple; sporangia terminal, at first globose, then oval, at length collapsed, sub-campanulate, whitish, then dark ashy-grey.—*Fr. S.M.* iii. *p.* 310. *Tode.* i. *t.* 3, *f.* 22. *Corda. Anl. t. c. f.* 24, *no.* 1-4. *Nees. f.* 80. *Grev. t.* 269. *Eng. Fl.* v. *p.* 331. *Pay. f.* 370. *Fckl. exs. no.* 54. *Cæm. Act. Belg.* viii. *f.* 17. *Pringsh. Jahrb.* ii. *t.* 30, *f.* 29. *Bisch. f.* 3790.

On bread, &c. Common. [Mid. Carolina.] (*Fig.* 299.)

1881. Ascophora elegans. *Corda.* "Elegant Ascophora."

Tufts minute, very fugacious, white; stem erect, rigid, fragile, white, simple above, with intricate dichotomous branches at the base; sporangia single, terminal, globose, brownish; sporidia ovoid.—*Corda.* iii. *f.* 43. *Thamnidium elegans, Lk. Obs.* i. *t.* 2, *f.* 45. *Nees. f.* 75. *Flora.* 1857, *t.* 5, *f.* 70.

On fowl's dung.

Gen. **266.** **MUCOR,** Mich.

Fig. 300.

Threads free; sporangia at length bursting, but not dependent.—*Berk. Outl. p.* 407. (*Fig.* 300.)

1882. Mucor phycomyces. *Berk.* "Shining Mucor."

Mycelium obsolete, flocci decumbent, olivaceous, shining; sporidia yellowish. —*Berk. Outl. p.* 407. *Phycomyces nitens, Bisch. f.* 3792. *Fr. S.M.* iii. *p.* 309. *Kunze. M.H.* ii. *t.* 2. *f.* 9. *Ann. N.H. no.* 224. *Byssus olivaceus, Winch. Fl. North. p.* 121.

On greasy walls, fat, &c. [Low. Carolina.]

1883. Mucor ramosus. *Bull.* "Branched Mucor."

Laniform; fertile flocci branched, above racemose; sporangia globose.—*Bull. t.* 480, *f.* 3. *Fr. S.M.* iii. *p.* 318. *Pers. Obs.* i. *t.* 6, *f.* 5, 6. *Eng. Fl.* v. *p.* 331.

On rotting fungi, &c.

Sometimes the sporangia are reddish-brown, more commonly yellow then bluish-grey. The branches are alternate and racemose, divaricate.

1884. Mucor mucedo. *L.* "Common Mucor."

Byssoid; fertile flocci simple; sporangia and sporidia globose, at length blackish.—*Linn. Sp.* 1655. *Bolt. t.* 132, *f.* 1. *Sow. t.* 378, *f.* 6. *Fr. S.M. p.* 320. *Eng. Fl.* v. *p.* 332. *Bull. t.* 480, *f.* 2. *Mich. t.* 95, *f.* 1. *Fres. t.* 1, *f.* 1-12.

On fruit, paste, preserves, &c. Common. [United States.]

1885. Mucor caninus. *P.* "Dog's dung Mucor."

Fertile flocci simple, sporangia at length yellow or ferruginous, globose; sporidia globose or elliptic.—*Pers. Syn. p.* 201. *Pers. Obs. t.* 6, *f.* 3, 4. *Grev. t.* 305. *Fr. S.M.* iii. *p.* 320. *Desm. exs. no.* 402. *Eng. Fl.* v. *p.* 332. *Bisch. f.* 3732. *Fckl. exs. no.* 52.

On dung of cats and dogs. Common. [Mid. Carolina.]

Head at first white, then bright yellow, then yellow-brown, at length black. Occasionally the colour is not so bright, and in the last stage the heads are scarcely black. Flocci at first erect, soon leaning in every direction.—*M. J. B.* (*Fig.* 300.)

1886. Mucor fusiger. *Lk.* "Fusiform Mucor."

Byssoid; fertile flocci simple, sporangia globose, hyaline, at length black; sporidia fusiform.—*Link. Sp.* i. *p.* 93. *Fr. S.M.* iii. *p.* 321. *Eng. Fl.* v. *p.* 332. *Fckl. exs. no.* 53.

On decaying *Agarics*. [Low. Carolina.]

Flocci septate, filled internally with distinct granules, thinly scattered, divergent, springing from the branched mycelium in such a manner that several of the sterile flocci unite to give off the simple sporidiferous thread; sporidia exactly fusiform.—*M. J. B.*

1887. Mucor clavatus. *Lk.* "Clavate Mucor."

Byssoid; fertile flocci simple, penetrating the globose sporangia by their clavate apices; sporidia globose.—*Link Sp.* i. *p.* 92. *Fr. S.M.* iii. *p.* 321. *Eng. Fl.* v. *p.* 332. *Bon. t.* 10, *f.* 202.

On fruit, &c. Winter. [Low Carolina.]

Sporangia at first white, then brown, at length black; fertile flocci not septate, indistinctly granular within; sporidia minute.—*M. J. B.*

1888. Mucor amethysteus. *Berk.* "Amethyst Mucor."

Fertile flocci simple; sporangia white, then pale yellow, then crystalline, and pure violet, at length violet-black or brownish; sporidia globose, with globose sporidioli, dull violet.—*Berk. Eng. Fl.* v. *p.* 332.

On rotting pears. Winter. Apethorpe.

Fertile flocci about ¼ in. high, four times as thick as in *M. clavatus*, filled with distinct granules; sporangia depresso-globose, sometimes collapsing slightly and nodding; sporidia rather large, containing globose sporidiola, which easily separate; mycelium thick, expanded, pure white, closely interwoven.—*M. J. B.*

1889. Mucor succosus. *Berk.* "Spongy Mucor."

Very minute; hyphasma spongiose; sporangia very minute,

globose, yellow, then olive; columella minute.—*Berk. Ann. N.H. no.* 225. *t.* 12, *f.* 15.

On cut stumps of *Aucuba japonica*. May. Apethorpe.

Forming small pulvinate orange-ochre spongy masses, which, while there is abundant nutriment, do not fructify, but when gathered produce a forest of exceedingly minute globoso yellow sporangia, not visible to the naked eye, at length becoming olivo; columella very small, and little more than a slight swelling of the top of the stem.—*M. J. B.*

1890. Mucor hyalinus. *Cooke.* "Hyaline Mucor."

Conidia. Sterile flocci effused, fertile somewhat branched; conidia rose-coloured, oblong, subfusiform.—*Penicillium roseum. Link. Fr. S.M.* iii. *p.* 409. *B. & Br. Ann. N.H. no.* 535.

Sporangia. Hyphasma creeping, profuse; flocci white, erect, branching; branches simple, sometimes divided, terminated by a delicate, hyaline, globose sporangium, containing minute subglobose sporidia.—*Cooke exs. no.* 359. *Pop. Sci. Rev. Jan.* 1861, *t.* 68, *fig.* 5.

On leaves of box. Winter.

Forming a dense white coating over the leaves, mixed with *Penicillium roseum*, Link, of which it appears to be the mature condition. The sporangia are small and very delicate, so as to be made out with difficulty. In habit very much like the *Penicillium*, but without any roseate tint.

1891. Mucor delicatulus. *Berk.* "Delicate Mucor."

Fertile flocci simple, abbreviated, of the same thickness as those of the mycelium; sporangia globose, pale yellow; sporidia globose.—*Berk. Eng. Fl.* v. *p.* 332.

On rotting gourds. Autumn. Apethorpe.

So small as to be scarcely perceptible to the naked eye, forming a velvety stratum, saturated with the juice of the matrix; sporangia at first white, then very pale yellow, sometimes apparently springing immediately from the branched, septate mycelium, and decumbent.—*M. J. B.*

1892. Mucor tenerrimus. *Berk.* "Slender Mucor."

Scattered, minute, wholly white; stem flexuous above, apex clavate; head with a globose columella.—*Berk. Outl. p.* 407. *Hydrophora tenerrima, Berk. Hook. Journ.* 1841, *p.* 78, *t.* i. *f. B.*

On sticks in woods.

Scarcely visible to the naked eye; stem a little flexuous above, ending in a clavate swelling, beyond which is the globose columella, from the base of which is deflected all round over the apex of the stem a delicate frill which at first formed a portion of the pendulum, and by its rupture leaves a large circular aperture at its base. Sporangium quite smooth, of two membranes often separated, sometimes in close contact; sporidia elliptic, filling the cavity between the columella and the inner membrane.—*M. J. B.*

1893. Mucor subtilissimus. *Berk.* "Onion Mucor."

Mycelium creeping; fertile floccі branched; branches short, spreading, each terminated by a minute sporangium; vesicles at length vanishing; spores oblong-elliptic.—*Berk. Hort. Journ.* iii. *p.* 98, *f.* 1-5.

On mildewed onions, developed from *Sclerotium cepœvorum* (*Ann. N.H. no.* 168).

This mould is so exceedingly minute that it may be considered as the most microscopic of any yet found in Britain.

Gen. **267.** **PILOBOLUS,** Tode.

Fig. 301.

Floccі simple, continuous, when mature ventricose above and clavate, terminated by an indurated, globose sporangium; dehiscent; including a globose sporidium.—*Fr. S.M.* iii. *p.* 312. (*Fig.* 301.)

1894. Pilobolus crystallinus. *Tode.* "Crystallino Pilobolus."

Apices of the floccі at length clavate, obovate; sporangium hemispherical.—*Fr. S.M.* iii. *p.* 312. *Purt.* iii. *t.* 31. *Pers. Obs.* i. *t.* 4, *f.* 9, 10. *Bull. t.* 480, *f.* 1. *Sow. t.* 300. *Bolt. t.* 133, *f.* 1. *Dicks. t.* 3, *f.* 6. *Fckl. exs. no.* 49. *Corda. Icon.* vi. *f.* 32. *Bisch. f.* 3724. *Bon. t.* 10, *f.* 203. *Kl. exs. no.* 1630.

On dung. [United States.]

"At first appearing, as Fries observes, under the form of a small yellow *Sclerotium*, which gradually acquires a stem, becomes inflated above, and loses its yellow hue; often densely tufted; very fugacious."—*M.J.B.*

1895. Pilobolus roridus. *Schum.* "Dewy Pilobolus."

Floccі elongated, filiform, apices globose; sporangium punctiform.—*Fr. S.M.* iii. *p.* 312. *Curr. Linn. Journ.* 1856, *t.* 2. *Pluck. phy. t.* 116, *f.* 7. *Bisch. f.* 3725. *Bolt. t.* 132, *f.* 4.

On dung. [S. Carolina, U. S.]

Smaller and slenderer than *P. crystallinus*.

(*Fig.* 301, *magnified.*)

Gen. **268.** **HYDROPHORA**, Tode.

Fig. 302.

Threads erect, tubular, sparingly articulate, equal above, terminated by a vesicle which is at first watery and crystalline, then turbid, and at length indurated, and persistent from the conglomeration of the spores.—*Berk. Outl. p.* 407. *Eng. Fl.* v. *p.* 331. (*Fig.* 302.)

1896. **Hydrophora stercorea.** *Tode.* "Dung Hydrophora."

Fleecy; floeci simple, very long, fugacious, white, sporangia spherical yellow, at length black.—*Fr. S.M.* iii. *p.* 314. *Eng. Fl.* v. *p.* 331. *Mucor stercoreus*, *Grev. Fl. Ed. p.* 448. *Corda. Icon.* vi. *f.* 31? *Fckl. exs. no.* 51.

On dung.

Distinguished by the crystalline, watery, not membranous, and dehiscent sporangium, and the indurated mass of sporidia not falling away in water.

Gen. **269.** **ENDODROMIA**, Berk.

Fig. 303.

Vesicle very delicate, perforated by the stem, filled with delicate, branched, radiating threads and globose spores, with a nucleus endowed with active motion.—*Berk. Outl. p.* 408. *Hook. Journ.* iii. *p.* 79. (*Fig.* 303.)

1897. **Endodromia vitrea.** *Berk.* "Glassy Endodromia."

Stem straight, slightly attenuated upwards, penetrating the sporangium; sporangium delicate, soon breaking up, filled with globose, colourless sporidia, and radiating, branched threads; sporidia with a globose nucleus.—*Berk. Hook. Journ.* 1841, iii. *t.* 1, *f. C.*

On fallen branches, especially ash.

Very minute, scarcely to be distinguished without the aid of a high magnifying power. Within each sporidium is a single globose nucleus, which moves about with great activity.—*M.J.B.* (*Fig.* 303)

Gen. **270.** **SPORODINIA,** Link.

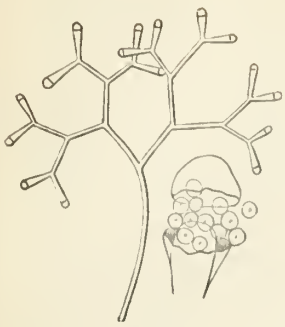


Fig. 304.

Stem dichotomously branched; vesicles solitary, terminal, at length splitting horizontally; columella large; spores simple, growing on the columella.—*Berk. Outl. p.* 408.

(*Fig.* 304.)

1898. Sporodinia dichotoma. *Corda.* "Dichotomous Sporodinia"

Tufts ochraceous; stem simple below, brown above, four times dichotomous; branches and ramuli spreading; sporangia terminal, obovate, diaphanous, circumscissile; columella hemispherical; sporidia large, globose, colourless, hyaline.—*Corda.* i. *f.* 284. (*Fig.* 304.)

On decaying fungi.

Gen. **271.** **ACROSTALAGMUS,** Corda.

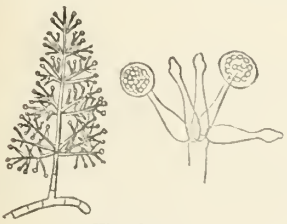


Fig. 305.

Flocci branched; branches verticillate; vesicles terminal, pierced by the threads, from the tips of which the spores are produced within the cells.—*Berk. Outl. p.* 408.

(*Fig.* 305.)

1899. Acrostalagmus cinnabarinus. *Corda.* "Vermillion Acrostalagmus."

Conidia. *Verticillium lateritium.—Botrytis lateritia, Berk. exs. no.* 98.

Sporangia. Tufts effused, vermillion, then pulverulent, mycelium branched, septate; stem straight, rigid, septate, pellucid; branches 4-5 ternate, ramuli verticillate, quaternate, subulate, spreading, capitate; sporangia globose; sporidia oval.—*Corda.* ii. *f.* 66. *Willk. p.* 92, *f. a-e. Kl. exs. no.* 1276. *Fckl. exs. no.* 155.

On decaying plants.

A very beautiful and not uncommon species, often of a ruddy pink rather than vermillion. (*Fig.* 305, *magnified.*)

Gen. 272. **SYZYGITES,** Ehrb.

Fig. 306.

Threads branched above; vesicles of separate branches conjugating and forming a distinct sporangium.—*Berk. Outl. p.* 408. (*Fig.* 306.)

1900. Syzygites megalocarpus. *Ehb.* "Conjugating Syzygites."

Tufts effused, irregular, dingy; olive-brown or glaucous; floeci intricate, filiform, eystomorphous; branches large, clavate, inflated, at first flesh coloured, then dingy; sporangia brown, verrucose, shining; spores ovate, whitish.—*Ehr. Syl. Ber. p.* 21, *t.* 2. *Corda Pracht. t.* 24. *Bisch. f.* 3794. *Nees. t.* 5. (*Fig.* 306.)

On decaying agarics.

Gen. 273. **ENDOGONE,** Link.

Fig. 307.

Hypogæous; floeci collected into a globose, spongy mass; vesicles globose, solitary, or collected in little fascicles at the ends of the branches.—*Fr. S.M.* ii. *p.* 295. *Tul. Hyp. p.* 181. *Berk. Outl. p.* 408. (*Fig.* 307.)

1901. Endogone pisiformis. *Link.* "Pea-shaped Endogone."

Irregularly globose, yellowish, dry; vesicles large, visible to the naked eye.—*Link. Obs. t.* 2, *f.* 52. *Tul. Hyp. p.* 183, *t.* 20, *f.* 1. *Corda. Ic.* vi. *t.* 9, *f.* 94. *Corda. Anl. t. c. f.* 40, *no.* 4, 5. *B. & Br. Ann. N.H.* xviii. *p.* 81. *Berk. Outl. t.* 24, *f.* 7. *Gard. Chron.* 14 *Mar.* 1845.

Amongst moss and in the superficial soil; under beech and larch, and in oak and hazel woods.

In a young state it is hard, when old less compact and granulated. About the size of a pea. Tulasne seems to regard the British plant as *Endogone macrocarpa*.—*Tul.*

1902. Endogone lactiflua. *B. & Br.* "Milky Endogone."

Irregular, globose, depressed, white, then dingy flesh-colour, fœtid, replete with a thick isabelline juice ; vesicles distinct to the naked eye.—*B. & Br. Ann. N.H.* xviii. *p.* 81. *Berk. Outl. p.* 409. *Tul. Hyp. p.* 183.

On the ground. Oct. Chudleigh.

Globose, at length depressed, half an in. in diameter; at first white, but soon, especially when rubbed, assuming a reddish tinge, pouring out when cut a rich, pale-red, cream-like fluid; sporangia as large as those of *E. pisiformis*.

Order XXV. SAPROLEGNIEI.

Fig. 308.

This order is at present uncertain, some considering it to belong to Algales, others to Fungi; it is named here provisionally, without venturing any special claim to a place amongst moulds, though of opinion that the evidence seems to be in its favour.

The following works may be consulted with advantage:—

Pringsheim, N., Nachträge zur Morphologie der Saprolegnieen. Jahrbücher für wissenschaftliche Botanik, ii. p. 284 (1858); t. xix. xx. ii. p. 205, t. xix (1860).

Archer, W., On Saprolegniaceæ. Proceedings Dublin Microscopical Club, i. p. 17, 97.

Archer, W., On two New Species in Saprolegnieæ. Proceedings Dublin Microscopical Club, i. p. 123.

Pringsheim, N., Monographie der Achyla prolifera. Nova Acta Nat. Curios., xxii. p. 1, t. 50.

De Bary, A., Einige neue Saprolegnieen. Pringsheims Jahrbücher, vol. ii. p. 169 (1860).

Unger, Dr., Recherches sur l'Achyla prolifera. Ann. des Sc. Nat. 3rd ser., vol. ii. p. 5 (1844).

Thuret, G., Recherches sur les Zoospores des Algues Saprolegniées. Ann. des Sc. Nat. 3rd ser., vol. xiv. p. 229 (1850).

Tute, J. S., Insect Moulds. Sci. Goss., 1865, p. 133.

Griffith & Henfrey, Micrographical Dictionary—"Achyla," p. 8 (1860).
Braun, A., Rejuvenescence in Nature, pp. 188, 268 (1853).
Robin, C., Histoire des Végétaux parasites, p. 372 (1853).
Cienkowski, in Botanische Zeitung, xiii. p. 801.
Nageli, C., Zeitschrift für Wiss. Bot., i. p. 102, iii. p. 28.

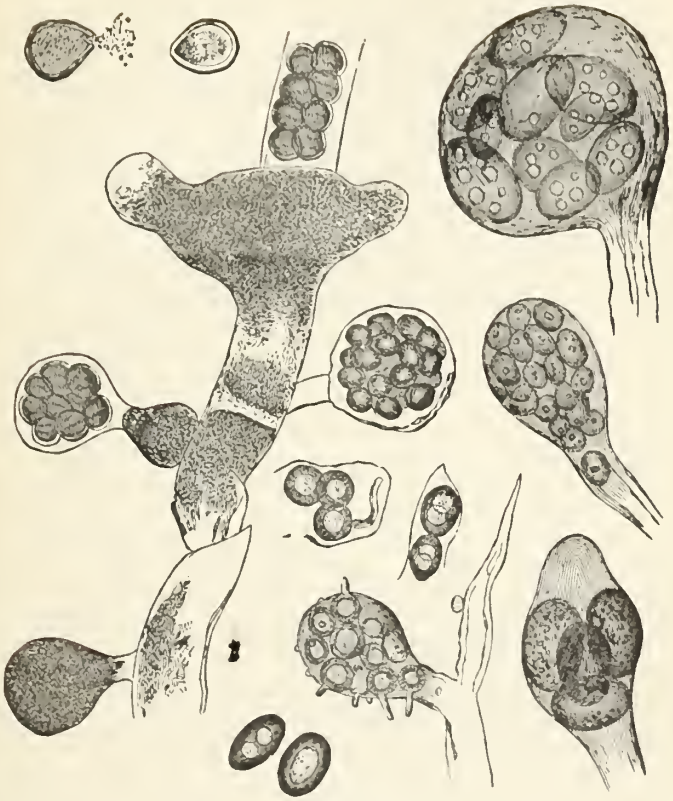


Fig. 309.

The following species are named as British :—

Saprolegnia ferax, *Kutz.* of which *Sporendonema muscæ*, Fries. or *Empusa muscæ*, Cohn. is an imperfect terrestrial condition. It is common on flies in autumn. (*Figs.* 308, 309.)

Saprolegnia monoica. *Prings.* Archer in Proc. Dubl. Micr. Club, i. p. 17.

Saprolegnia androgyna. *Archer.* Proc. Dubl. Micr. Club. i. p. 98, 126, t. 3, f. 1.

Achyla prolifera. *Nees.*

Achyla dioica. *Prings.*

Achyla cornuta. *Archer.* in Proc. Dubl. Micr. Club. i. p. 128, t. 3, f. 2-6.

Aphanomyces stellatus. *De By.* Archer in Proc. Dubl. Micr. Club. i. p. 17.

Family VII. ASCOMYCETES.

Fruit consisting of sporidia, mostly definite, contained in asci, springing from a naked, or enclosed stratum of fructifying cells, and forming an hymenium or nucleus.—*Berk. Outl. p.* 357.

The essential character of this important division consists in the development of definite or indefinite sporidia within certain of the external cells of the hymenium called *asci*, frequently accompanied by ir articulate or septate, simple or branched, threads, which are abortive asci, known under the name of *paraphyses*.—*Berk Intr. p.* 270.

Asci often evanescent.
- Receptacle clavæform.
  - Asci springing from threads . . . . . *Onygenei.*
- Perithecia free.
  - Asci springing from the base . . . . . *Perisporiacei.*

Asci persistent.
- Perithecia opening by a distinct ostiolum . . . *Sphæriacei.*
- Hard or coriaceous, hymenium at length exposed . *Phacidiacei.*
- Hypogeous ; hymenium complicated . . . . *Tuberacei.*
- Fleshy, waxy, or tremelloid ; hymenium mostly exposed *Elvellacei.*

Order XXVI. ONYGENEI.

Peridium formed of closely interwoven threads; sporidia at length forming a compact, dusty mass.—*Berk. Outl. p.* 406.

General receptacle clavæform or subglobose; peridium brittle, filled with branched threads, which produce asci at different points; asci soon absorbed; sporidia filling the cavity of the peridium, pulverulent.—*Berk. Intr. p.* 272.

Gen. **274.** **ONYGENA,** Pers.

Fig. 309.

Parasitic on animal substances ; peridium stipitate, or sessile, papyraceous, at length splitting ; asci delicate ; sporidia at length forming a dusty mass.—*Berk. Outl. p.* 406. (*Fig.* 309.)

The species resemble little round-headed nails, and are smooth externally, and filled within with reddish powder, which is at first contained in asci. They are small and singular from their affecting animal substances, and their external resemblance to little puff-balls. (*Fig.* 309.)

1903. Onygena equina. *Pers.* "Hoof Onygena."

Head lenticular, furfuraceous, dirty white, at length more or less regularly splitting all round; stem abbreviated; sporidia oblong-ovate or ovate, simple; epispore pale tawny; nucleus oblong, hyaline.—*Pers. Syn. p.* 203. *Fckl. Sym. Myc. t.* 6, *f.* 19. *Mong. exs. no.* 775. *Grev. t.* 343. *Tul. Ann. Sc. Nat.* 1844, *t.* 17, *f.* 12-17. *Corda.* vi. *t.* 10, *f.* 96. *Fr. S.M.* iii. *p.* 207. *Eng. Fl.* v. *p.* 322. *Chev. t.* 8, *f.* 8. *Lycop. equinum. Sow. t.* 292. *Lycop. gossypinum. Bolt. t.* 178. *Ray. Syn.* (*ed.* 3), *t.* 1, *f.* 3. *Mich. t.* 97, *f.* 8. *Pers. Obs.* ii. *t.* 6, *f.* 3, *a. b. c. Fl. Dan. t.* 1309, *f.* 1. *Nees. f.* 121.

On hoofs of horses, &c. [Mid. Carolina.]

(*Fig.* 309.)

1904. Onygena piligena. *Fr.* "Flannel Onygena."

Head globose, somewhat umbilicate beneath, peridium rupturing at the base, deciduous, membranaceous; stem elongated, equal.—*Fr. S.M.* iii. *p.* 208. *B. & Br. Ann. N.H. no.* 219. *Fl. Dan. t.* 1740, *f.* 2.

On old flannel. Sherwood Forest.

Gregarious; stem half in. long, equal, even, fibroso-striate. According to some the peridium is double, the outer being membranaceous, white, splitting to the base in unequal revolute laciniæ, the inner very delicate and translucent.

1905. Onygena apus. *B. & Br.* "Bone Onygena."

Peridium white, sessile, globose, seated on a delicate, white mycelium, externally tomentose, mature mass red-brown.—*B. & Br. Ann. N.H. no.* 582.

On decaying bones. Nov. Bristol.

Peridia globose, white, sessile, seated on a delicate white mycelium, about the size of rape seeds, under a lens tomentose, but even, not rugose; sporidia ovate-elliptic, containing one or two granules, colouring the internal mass of a dark chocolate.—*B. & Br.*

Closely allied to the North American species *O. corvina. A. & S.*

Order XXVII. PERISPORIACEI.

Perithecia subglobose, always closed, except by decay, mostly membranaceous ; nucleus never diffluent.—*Berk. Outl. p.* 403.

Perithecia free, astomous, often surrounded by threads, distinct from the mycelium *(fulcra)*. Asci tubular or saccate, often absorbed at an early stage, springing from the base, occasionally solitary. Many of the species grow on living leaves, and are very destructive.—*Berk Intr. p.* 273.

Perithecia collapsing above, attached to radiating fibres	*Lasiobotrys.*
Perithecia subglobose, without distinct thallus or appendages	*Perisporium.*
Conceptacle with one sporangium.	
Appendages floccose	*Sphærotheca.*
Appendages dichotomous, thickened at the tips	*Podosphæra.*
Conceptacle with many sporangia.	
Appendages needle-shaped, rigid	*Phyllactinia.*
Appendages hooked	*Uncinula.*
Appendages dichotomous	*Microsphæria.*
Appendages floccose	*Erysiphe.*
Peritheeia thin, brittle, sporangia linear, sporidia coloured	*Chætomium.*
Perithecia seated on conidiiferous threads	*Ascotricha.*
Perithecia reticulated, attached to mucedinous threads	*Eurotium.*

Gen. **275.** **PERISPORIUM,** Fr.

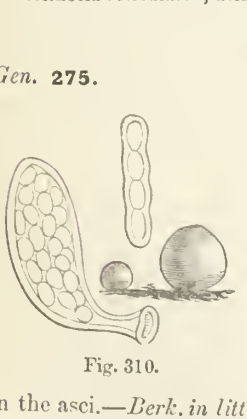


Fig. 310.

Peritheeium subglobose, without any manifest thallus or appendages; asci clavate ; sporidia indefinite.—*Berk. Outl. p.* 403. (*Fig.* 310.)

1906. Perisporium princeps. *Berk.* " Princely Perisporium."

Peridia in clusters, sub-hemispherical, very black and large ; sporidia brown, very much crowded in the asci.—*Berk. in litt. Berk. Outl. p.* 403. *Berk. exs. no.* 287.

On a beam which had been taken out of a chimney and exposed to the weather. King's Cliffe.

1907. Perisporium vulgare. *Corda.* "Common Perisporium."

Gregarious, globose, black, erumpent or superficial; asci clavate; sporidia ovate, brown, concatenate in fours.—*Corda.* ii. *f.* 97. *B. & Br. Ann. N.H. no.* 1103. *Payen f.* 442-249.

On old rope. Nov. Bathcaston. (*Fig.* 310.)

Sporidia in chains of four ¦(·00025 in.) ·006 m.m. long when separated; asci with a delicate stem.

1908. Perisporium arundinis. *Desm.* "Reed Perisporium."

Scattered, flattened, nearly black, minute; sporidia ovate, or oblong, pale brown.—*Desm. exs. no.* 329. *Berk Ann. N.H. no.* 220. *Fckl. exs. no.* 644.

On leaves of reeds and their sheaths. Spring.

"A very doubtful production."—*M. J. B.* Often barren.

Gen. **276.** **LASIOBOTRYS,** Kunze.

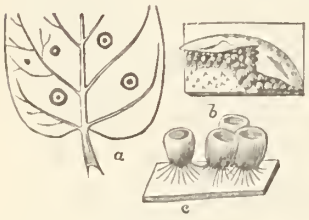


Fig. 311.

Erumpent; central peridium between fleshy and horny, proliferous, collapsing above, attached to radiating fibres; secondary peridia ascigerous; asci cylindrical.—*Berk Outl. p.* 404.

This genus differs from its allies in its subcuticular growth. (*Fig.* 311).

1909. Lasiobotrys loniceræ. *Kze.* "Honey-suekle Lasiobotrys."

Perithecia crowded in little orbicular tufts, even, depressed above; radiating filament simple; asci cylindrical, short, thick; sporidia?—*Kunze M.H.* ii. *p.* 88. *Grev. t.* 191. *Moug. exs. no.* 860. *Fr. S.M.* iii. *p.* 233. *Fr. Obs.* i. *t.* 4, *f.* 7. *Eng. Fl.* v. *p.* 325. *B. & Br. Ann. N.H. no.* 661, *t.* xii. *f.* 44. *Gard. Chron. Dec.* 6, 1851. *Desm. exs. no.* 957. *Corda. Anl. t. F. f.* 53, 4-7. *Bisch. f.* 3701. *Fckl. exs. no.* 1749. *Berk. exs. no.* 48.

On living leaves of *Lonicera.*

Epiphyllous, or cauline, with or without a yellow spot, at first covered by the epidermis, when mature very black, and regular, circular, from one to two lines in breadth, slightly convex, bursting at first in the centre, and exposing the perithecia.

(Fig. 311—*a*, nat. size ; *b*, portion of tuft enlarged; *c*, perithecia magnified.)

Lasiobotrys linneæ, *Berk*, is *Venturia Dickiæi.*

Gen. **277.** **SPHÆROTHECA,** Lev.

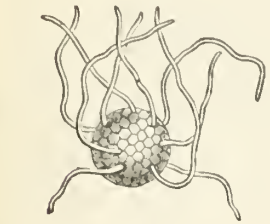


Fig. 312.

Mycelium arachnoid; peritheeia globose, containing a single globose sporangium ; appendages numerous, floccose.—*Berk. Outl. p.* 404. (*Fig.* 312.)

1910. Sphærotheca pannosa. *Lev.* "Rose Blight."

Mycelium thickened, woolly, felted, persistent; conceptacles minute, globose, seattered; appendages floceose, white; sporangium many-spored.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 138, *t.* 6, *f.* 8. *Cooke Micr. F. t.* xi. *f.* 217, 218. *Cooke exs. no.* 90. *Eng. Fl.* v. *p.* 325. *Fckl. exs. no.* 725. *Erysiphe pannosa. Tul. Carp.* i. *p.* 208, *t.* 3. *Berk. exs. no.* 96. *Eurotium rosarum. Grev. t.* 164, *f.* 2. *Baxt. exs. no.* 92. *Fr. S.M.* iii. *p.* 232.

On the branches, ealyees, petioles, and leaves of roses. Common.

The conidiophorous condition is *Oïdium leucoconium.—Desmz.*

1911. Sphærotheca Castagnei. *Lev.* "Hop Blight."

On both surfaces ; mycelium effuse, web-like, commonly evaneseent; eonceptaeles minute, scattered, globose; appendages numerous, short, flexuose above; sporangium many-spored.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 139, *t.* 6, *f.* 9, 10. *Cooke M.F. t.* xi. *f.* 216. *Cooke exs. no.* 91. *Fckl. exs. no.* 711-720. *E. Dipsacearum, Tul. Carp.* i. *p.* 210, *t.* 4, *f.* 4-9. *E. macularis, Eng. Fl.* v. *p.* 325. *Ayres. exs. no.* 22.

On leaves of hop, meadowsweet, and other plants.

(*Fig.* 312, *conceptacle magnified.*)

Gen. **278.** **PHYLLACTINIA,** Lev.

Fig. 313.

Perithecia hemispherical, at length depressed, seated on a persistent or evanescent membranaceo-granular receptacle; appendages straight, rigid, acicular, at length bent back.—*Berk. Outl. p.* 404. (*Fig.* 313.)

1912. Phyllactinia guttata. *Lev.* "Hazel Blight."

Amphigenous; mycelium web-like, often evanescent; conceptacles large, scattered, hemispherical, at length depressed; appendages hyaline, rigid, simple; sporangia 4-20, containing 2-4 sporidia.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 144, *t.* 7, *f.* 11. *Cooke M.F. t.* xi. *f.* 219, 220. *Cooke exs. no.* 92. *Fckl. exs. no.* 702-710. *Erysiphe guttata, Eng. Fl.* v. *p.* 327. *Baxt. exs. no.* 96. *Tul. Carp.* i. *p.* 194, *t.* i. *Berk. exs. no.* 205.

On leaves of hawthorn, hazel, ash, elm, alder, beech, birch, oak, hornbeam, &c. Common. [United States.]

(*Fig.* 313, *conceptacle magnified* 300.)

Gen. **279.** **UNCINULA,** Lev.

Fig. 314.

Mycelium floccose; perithecia globose; appendages rigid, simple, bifid, or dichotomous, uncinate, at length bent upwards.—*Berk. Outl. p.* 404. (*Fig.* 314.)

1913. Uncinula adunca. *Lev.* "Willow Blight."

Mycelium variable; conceptacles scattered or gregarious, minute; appendages simple; sporangia 8-12, sub-pyriform, containing 4 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 150, *t.* 7, *f.* 15. *Cooke M. F. t.* xi. *f.* 221-224. *Fckl. exs. no.* 699-700. *E. Salicis, Tul. Carp.* i. *p.* 198, *t.* 2. *f.* 1. *E. adunca, Eng. Fl.* v. *p.* 327. *Grev. t.* 296. *Baxt. exs. no.* 95.

On leaves of willows, poplars, birch, &c. [United States.]

(*Fig.* 314, *conceptacle magnified.*)

1914. Uncinula bicornis. *Lev.* "Maple Blight."

Amphigenous; mycelium web-like, effuse, evanescent, or like a membrane and persistent; conceptacles large, hemispherical, at length depressed; appendages simple, bifid, or dichotomous, uncinate; sporangia 8, sub-pyriform, containing 8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 153, *t.* 7, *f.* 17. *Cooke M.F. t.* xi. *f.* 225-228. *Cooke exs. no.* 93. *Fckl. exs. no.* 701. *E. aceris, Tul. Carp.* i. *p.* 197, *t.* 2, *f.* 2, 3. *E. bicornis, Eng. Fl.* v. *p.* 327. *Ayres, exs. no.* 78.

On leaves of maples, &c. Common.

1915. Uncinula Wallrothii. *Lev.* "Sloe Blight."

Amphigenous; mycelium web-like, evanescent; conceptacles minute, scattered; sporanges 12-16, pear-shaped, 6-spored; appendages numerous, twice the length of the diameter of the conceptacles.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 153, *t.* 7, *f.* 16. *Seem. Journ.* iv. *p.* 97. *Cooke M.F.* ii. *ed. p.* 226. *Erysiphe Prunastri, D.C. Fl. Fr.* vi. *p.* 108. *Tul. Carp.* i. *p.* 199. *Erysiphe adunca*, β. *Prunastri, Duby. p.* 870. *Fr. S.M.* iii. *p.* 245.

On the leaves of *Prunus spinosa*. October.

This species is very closely allied to *Uncinula adunca*, from which the length of the appendages, the number of sporanges, and of the spores, with its evanescent mycelium, distinguish it.

Gen. **280. PODOSPHÆRA,** Kunze.

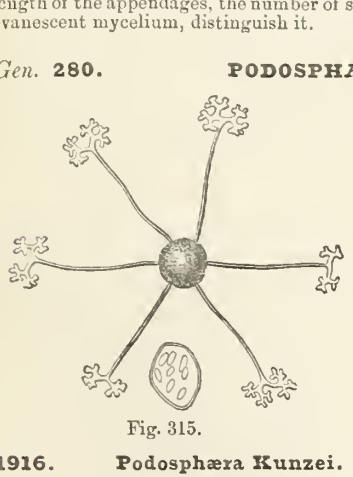


Fig. 315.

Mycelium effuse, web-like, evanescent; conceptacles sphærical, containing one, sub-globose, 8-spored sporangium; spores ovate; appendages few, dichotomous, thickened at their extremities, hyaline. — *Lev. Ann. Sc. Nat.* (*Fig.* 315.)

1916. Podosphæra Kunzei. *Lev.* "Plum-leaf Blight."

Amphigenous; conceptacles minute, scattered, globose; appendages three times the length of the diameter of the concep-

tacles.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 135, *t.* 6, *f.* 6. *Cooke Seem. Journ. t.* xlv. *f.* 3. *Cooke M.F.* ii. *ed. p.* 226. *Fckl. exs. no.* 726-728. *Erysibe tridactyla, Rabh. D. Krypt. Fl. p.* 237. *Desmz. Ann. Sc. Nat. ser.* 3, *t.* iii. *p.* 361. *Tul. Carp.* i. *p.* 201, *t.* 4, *f.* 11-13.

On the leaves of *Prunus domestica.* September.
[Mid. Carolina.]
(*Fig.* 315.)

1917. Podosphæra clandestina. *Lev.* "Hawthorn Blight."

Amphigenous; conceptacles minute, globose, scattered; appendages (8-10) equal in length to the diameter of the conceptacles; branches short and rounded at their extremities.—*Lev. Ann. des Sc. Nat.* 1851, xv. *p.* 135, *t.* 6, *f.* 5. *Cooke Seem. Journ. t.* xlv. *f.* 4. *Cooke M.F.* ii. *ed. p.* 226. *Fckl. exs. no.* 729. *Erysiphe Oxyacanthæ, D.C. Fl. Fr.* vi. *p.* 106. *Duby. Bot. Gall.* 868. *Cast. Cat. p.* 190. *Tul. Carp.* i. *p.* 202, *t.* 4, *f.* 10. *Erysiphe clandestina, Fr. Sys. Myc. p.* 238.

On the leaves of hawthorn. September.

Gen. **281.** **MICROSPHÆRIA,** Lev.

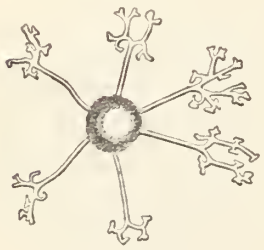


Fig. 316.

Mycelium arachnoid; appendages straight, dichotomous; branchlets swelling at the tip, or filiform.—*Berk. Outl. p.* 404.
(*Fig.* 316.)

1918. Microsphæria Hedwigii. *Lev.* "Mealy Guelder-rose Blight."

Hypophyllous; mycelium web-like, evanescent; conceptacles minute, globose, scattered; appendages few, very little longer than the diameter of the conceptacles; sporangia 4, ovate, containing 4 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 155, *t.* 8, *f.* 19. *Cooke M.F. p.* 219, *t.* xii. *f.* 243. *Calocladia Hedwigii. Fckl. exs. no.* 695.

On leaves of mealy guelder-rose. [Low. Carolina.]
(*Fig.* 316, *conceptacle magnified.*)

1919. Microsphæria penicillata. *Lev.* "Guelder-rose Blight."

Amphigenous; mycelium web-like, effuse, evanescent; conceptacles scattered, minute, globose; appendages 8-12, equal to the diameter of the conceptacle; sporangia 4, ovate, rostrate, containing 8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 155, *t.* 8, *f.* 21. *Cooke M.F. t.* xi. *f.* 234. *Fckl. exs.* 690, 691. *E. Alni, Tul. Carp.* i. *p.* 203, *t.* 2, *f.* 5-7.

On leaves of guelder-rose and alder. [United States.]

1920. Microsphæria Mougeotii. *Lev.* "Tea-tree Blight."

Amphigenous; mycelium web-like, oftentimes persistent; conceptacles minute, scattered or gregarious, globose, at length depressed; appendages loosely dichotomous; sporangia 12-16, on a short pedicel, 2-spored.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 158, *t.* 9, *f.* 24. *Cooke M.F. p.* 219.

On leaves of *Lycium barbarum*. October.

1921. Microsphæria berberidis. *Lev.* "Berberry Blight."

Amphigenous; mycelium web-like, oftentimes persistent; conceptacles scattered or gregarious, globose, minute; appendages few (5-10); branchlets long, divaricate, obtuse at their apices; sporangia 6, ovate, containing 6-8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 159, *t.* 10, *f.* 28. *Cooke M.F. t.* xi. *f.* 229-232. *Cooke exs. no.* 95. *Fckl. exs. no.* 693. *E. Berberidis, Tul. Carp.* i. *p.* 204, *t.* 5, *f.* 1. *E. penicillata. Eng. Fl.* v. *p.* 327 (*partly*).

On leaves of berberry. Autumn.

1922. Microsphæria grossulariæ. *Lev.* "Gooseberry Blight."

Amphigenous; mycelium web-like, fugacious or persistent; conceptacles scattered or gregarious, globose, minute; appendages 10-15, vaguely dichotomous, ultimate branchlets bidentate; sporangia 4-8, ovate, containing 4-5 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 160, *t.* 9, *f.* 25. *Cooke M.F. p.* 220. *Fckl. exs. no.* 697. *E. penicillata, Eng. Fl.* v. *p.* 327 (*partly*).

On gooseberry leaves.

1923. Microsphæria comata. *Lev.* "Spindle-tree Blight."

Hypophyllous; mycelium web-like, fugacious; conceptacles scattered, minute, globose; sporanges, 8, ovate, with a beak-like termination at their base, 4-spored; appendages few, six

times the length of the diameter of the conceptacles.—*Calocladia comata*, *Lev. Ann. des. Sc. Nat.* 1851, xv. *p.* 157, *t.* 9, *f.* 23. *Cooke Seem. Journ. t.* xlv. *f.* 5. *Cooke. exs. no.* 94. *Cooke M.F.* ii. *ed. p.* 226. *Fckl. exs. no.* 692. *Erysibe Euonymi*, *DC. Fl. Fr.* vi. *p.* 105. *E. penicillata*, ϵ. *Euonymi*, *Fr. S.M.* iii. *p.* 244.

On the leaves of *Euonymus Europæus*. September.

Gen. **282.** **ERYSIPHE,** Hedw.

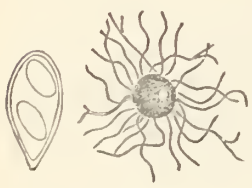


Fig. 317.

Mycelium arachnoid; appendages floccose, simple, or irregularly branched.—*Berk. Outl. p.* 404. (*Fig.* 317.)

* Sporangia 2-spored.

1924. **Erysiphe Linkii.** *Lev.* "Mugwort Blight."

Amphigenous; mycelium web-like, fugacious or persistent; conceptacles minute, globose, scattered, emersed; appendages white, interwoven with the mycelium; sporangia 8-20, pyriform, with elongated pedicels.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 161, *t.* 10, *f.* 29. *Cooke M.F. t.* xii. *f.* 248, 249. *Cooke exs. no.* 199. *Fckl. exs. no.* 648, 649. *E. communis. Eng. Fl.* v. *p.* 325 (*partly*).

On leaves of mugwort. Autumn.

1925. **Erysiphe lamprocarpa.** *Lev.* "Composite Blight."

Amphigenous; mycelium web-like, fugacious, or persistent; conceptacles minute, globose, scattered, or gregarious; appendages coloured, interwoven with the mycelium; sporangia 8-16, shortly pedicellate.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 163, *t.* 10, *f.* 31. *Cooke M.F. t.* 12, *f.* 250, 251. *Cooke exs. no.* 200. *Fckl. exs. no.* 650-658.

On leaves of Salsify, Scorzonera, Plantain, &c. Autumn.

(*Fig.* 317, *Conceptacle and Sporangium magnified.*)

** Sporangia 3-8 spored.

1926. Erysiphe graminis. *D.C.* "Grass Blight."

Amphigenous or epiphyllous; mycelium effuse, floccose, persistent; conceptacles large, gregarious or disseminated, hemispherical, at length depressed and semi-immersed; appendages simple or interwoven with the mycelium; sporangia 20-24, ovate, pedicellate, with 8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 165, *t.* 10, *f.* 33. *Cooke M.F. t.* xi. *f.* 235, 236. *Ayres. exs. no.* 23. *Tul. Carp.* i. *p.* 212. *Fckl. exs. no.* 659.

On leaves of grasses. Autumn.

The conidiiferous condition of this species is *Oïdium monilioides*. Link.

1927. Erysiphe martii. *Lk.* "Pea Blight."

Amphigenous; mycelium web-like, very often evanescent, globose; appendages short, interwoven with the mycelium; sporangia 4-8 globose, pedicellate, with 4-8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 166, *t.* 10, *f.* 34. *Cooke M.F. t.* xi. *f.* 237-239. *Cooke exs. no.* 96. *Fckl. exs. no.* 660-671. *E. pisi. Tul. Carp.* i. *p.* 216, *t.* 5, *f.* 7, *a. b. E. communis. Eng. Fl.* v. *p.* 325 (*partly*).

On leave of peas, beans, *Umbelliferæ*, &c. Autumn. Common. [Up. Carolina.]

1928. Erysiphe Montagnei. *Lev.* "Burdock Blight."

Amphigenous or hypophyllous; mycelium web-like, evanescent; conceptacles minute, globose, gregarious or scattered; appendages distinct from the mycelium; sporangia 8, ovate, rostrate, with 2-3 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 169, *t.* 11, *f.* 36. *Cooke M.F. p.* 220. *Cooke exs. no.* 97. *Fckl. exs. no.* 673, 674. *E. communis. Eng. Fl.* v. *p.* 325 (*partly*).

On leaves of Burdock.

1929. Erysiphe tortilis. *Lk.* "Cornel Blight."

Hypophyllous; mycelium web-like, effuse, evanescent; conceptacles minute, globose; appendages ten times as long, free from the mycelium, flexuose; sporangia 4, ovate, rostrate, with 4 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 170, *t.* 11, *f.* 35. *Cooke M.F. t.* xii. *f.* 245, 246. *Cooke exs. no.* 98. *Eng. Fl.* v. *p.* 327. *Tul. Carp.* i. *p.* 213. *Fckl. exs. no.* 672. *Berk. exs. no.* 204.

On leaves of common Dogwood. Autumn.

1930. Erysiphe communis. *Schl.* "Buttercup Blight.'

Hypophyllous; mycelium effuse, web-like, evanescent or persistent; conceptacles minute, globose, scattered or gregarious; appendages short; sporangia 4-8, ovate, rostrate, with 4-8 spores.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 171, *t.* 11, *f.* 38. *Cooke M.F. t.* xii, *f.* 240-242. *Cooke exs. no.* 99. *Eng. Fl.* v. *p.* 325 (*partly*). *Tul. Carp.* i. *p.* 214, *t.* 5, *f.* 3-7. *Fckl. exs. no.* 675-685. *Berk. exs. nos.* 200-203, 269-313.

On leaves of *Ranunculaceæ*, *Leguminosæ*, &c. Autumn. Common. [United States.]

1931. Erysiphe horridula. *Lev.* "Bugloss Blight."

Amphigenous; mycelium web-like, sometimes persistent; conceptacles minute, globose, scattered, or clustered; sporanges 20-24, oblong-ovate, attenuated downwards, containing 3-4 spores; appendages short, flexuose, and bent upwards.—*Lev. Ann. Sc. Nat.* 1851, xv. *p.* 170, *t.* 11, *f.* 37. *Cooke Seem. Journ. Fckl. exs. no.* 688.

On leaves of *Lycopsis arvensis.* Oct. [Low. Carolina.]

Gen. 283. **CHÆTOMIUM,** Kze.

Fig. 318.

Perithecium thin, brittle, mouthless; sporangia linear, containing dark lemon-shaped sporidia.—*Berk. Outl. p.* 405. *Eng. Fl.* v. *p.* 327. (*Fig.* 318.)

1932 Chætomium elatum. *Kze.* "Straw Bristle-Mould."

Perithecium sub-ovate, base radiato-fibrose, hairs of the vertex very long, interwoven, branched; sporidia broadly elliptic, apiculate at either end.—*Kunze M.H.* i. *t.* i. *f.* 3. *Grev. t.* 230. *Fr. S.M.* iii. *p.* 254. *Fr. exs. no.* 459. *Cooke M.F. t.* xii. *f.* 257-259. *Cooke exs. no.* 100. *Eng. Fl.* v. *p.* 328. *Fckl. exs. no.* 646. *Sphæria scopula. Sow. t.* 386, *f.* 4. *Berk. exs. no.* 49.

On mouldering straw, &c. Common. [Low. & Mid. Carolina.]

It has been stated that *Sporodum conopleoides* is the conidiophorous state of this species.—See No. 1756, ante.

1933. Chætomium chartarum. *Ehb.* "Paper Bristle-Mould."

Perithecium subglobose, black, surrounded by a bright yellow spot; sporidia subglobose.—*Fr. S.M.* iii. *p.* 255. *Cooke M.F. t.* xii. *f.* 252, 253. *Eng. Fl.* v. *p.* 328.

On paper. Stibbington, Hants. [United States.]

"The sporidia are decidedly more globose than in *C. elatum*, having very little of the peculiar lemon-like form of that species."—*M. J. B.*

(Fig. 318, *Perithecium and free spore magnified.)*

1934. Chætomium glabrum. *B.* "Smooth Bristle-Mould."

This species has never been described. It was recorded, by name only, in Berkeley's Outlines, and, the specimens being mislaid, that gentlemen is unable to describe it completely and correctly.

On damp straw.

"It grew abundantly on straw, and differed from *Chætomium elatum* in being perfectly free from hairs."—*M. J. B.*

1935. Chætomium murorum. *Corda.* "Wall Bristle-Mould."

Sub-gregarious, glaucous, then blackish; perithecium globose, brown; hairs circinate, erect, septate, pulverulent; sporidia oblong, yellowish.—*Corda.* ii. *t.* 13, *f.* 103. *Cooke, M.F. ea.* ii. *p.* 226.

On plaster.

Chætomium Indicum, *Corda*, has been found in London on paper which had come from Burmah, but it has no claim to be included as British.—*Cooke exs. no.* 216.

Gen. **284.** **ASCOTRICHA,** Berk.

Fig. 319.

Perithecium thin, free, mouthless, seated on loose, branched, conidiiferous threads; sporangia linear, containing dark elliptic sporidia.—*Berk. Outl. p.* 405. (*Fig.* 319.)

1936. Ascotricha chartarum. *B.* "Paper Mildew."

Perithecium thin, olive-brown, seated on radiating flocci; sporangia linear, numerous; sporidia broadly elliptic, chocolate-coloured.—*Berk. Ann. N.H. no* 116. *Cooke M.F. p.* 221, *t.* xii. *f.* 254-256.

On white printed paper. King's Cliffe.

(*Fig.* 319.)

Gen. **285.** **EUROTIUM,** Link.

Fig. 320.

Peritheeia reticulated, vesicular, coloured, attached to mucedinous threads; sporangia delicate.—*Berk. Outl. p.* 405. (*Fig.* 320.)

1937. Eurotium herbariorum. *Lk.* "Herbarium Mould."

Perithecium spherical, sub-depressed, yellow, seated upon radiating, expanded, branched, intricate flocci.—*Lk. Sp.* i. *p.* 79. *Eng. Fl.* v. *p.* 333. *Grev. t.* 164, *f.* 1. *Fr. S.M.* iii. *p.* 332. *Cooke M.F. p.* 222, *t.* xii. *f.* 260, 261. *Fckl. exs. no.* 1748. *Farinaria sulphurea, Sow. t.* 379, *f.* 3.

On plants in herbaria and various decaying substances. Common. [United States.]

This is now admitted to be an ascigerous condition of *Aspergillus glaucus*. See No. 1757, ante. (*Fig.* 320.)

Order. XXVIII. ELVELLACEI.

Hymenium at length more or less exposed; substance soft. —*Berk. Outl. p.* 358.

Receptacle pileate or clavate—	
Hymenium folded and pitted	*Morchella.*
Hymenium even	*Helvella.*
Hymenium rugulose	*Verpa.*
Hymenium smooth, viscid	*Leotia.*
Receptacle clavate, confluent with stem	*Geoglossum.*
Receptacle inflated—	
Hymenium ribbed	*Gyromitra.*
Receptacle capitate—	
Head distinct, inflated	*Mitrula.*
Head compressed, running down the stem	*Spathularia.*
Head orbicular, hymenium velvety	*Vibrissea.*
Receptacle crustaceous, effused, with root-like fibrils	*Rhizina.*
Receptacle cup-shaped—	
Disc soon open	*Peziza.*
Disc always open	*Helotium.*
Receptacle indeterminate	*Psilopezia.*
Receptacle patellæform, margined—	
Asci fixed.	*Patellaria.*
Asci exploded	*Ascobolus.*
Receptacle cyathiform, horny	*Tympanis.*
Receptacle closed, then open, coriaceous	*Cenangium.*
Receptacle orbicular, then truncate	*Bulgaria.*
Receptacle sphærical, waxy	*Agyrium.*
Receptacle deciduous—	
Disc waxy, persistent	*Laquearia.*
Receptacle obsolete—	
Hymenium immersed in matrix	*Stictis.*
Hymenium a pulverulent stratum	*Ascomyces.*

Gen. **286.** **MORCHELLA,** Dill.

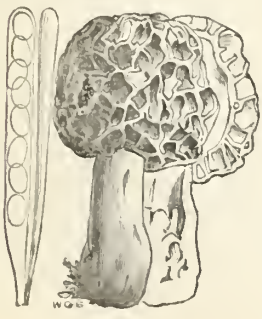


Fig. 321

Receptacle clavate or pileate, impervious in the centre, stipitate, covered with the hymenium, which is deeply folded and pitted. —*Fr. S.M.* ii. *p.* 5. *Berk. Outl. p.* 358. (*Fig.* 321.)

1938. Morchella esculenta.
Pers. "Common Morel."

Pileus ovate, adnate at the base; ribs firm, anastomosing, and forming deep pits; stem even; asci very long, sporidia oblong-

ovate.—*Fr. S.M.* ii. *p.* 6. *Badh.* i. *t.* 12, *f.* 2, ii. *t.* 12, *f.* 6. *Hogg. & Johnst. t.* 2. *Vent. t.* 16, *f.* 5-8. *Fckl. exs. no.* 1243. *Rav. exs.* i. *no.* 36. *Tratt. Aust. t.* 6, *no.* 11. *Tratt. Ess. t. E.E. Smith, E.M. f.* 20. *Grev. t.* 68. *Huss.* i. *t.* 13. *Berk. Outl. t.* 21, *f.* 5. *Cooke B.F. f. h. Phallus esculentus, Bolt. t.* 91. *Schæff. t.* 199. *Bull. t.* 238? *Mich. t.* 85, *f.* 1. *Sow. t.* 51 (*part*). *Batt. t.* ii. *f. F. Fl. Dan. t.* 53. *Vent. f.* 107-109. *Roq. t.* 1, *f.* 4-5. *Hrz. t.* 50. *Bisch. f.* 3302. *Eng. Fl.* v. *p.* 182.

In woods, &c. Spring—Summer. Esculent.

[S. Carolina.]

Varying much in breadth and height, sometimes conical, sometimes almost cylindrical. Pileus 2-3 in. high, yellowish, olivaceous, cinereous, &c., the ribs sometimes tinged with a different colour from the cells. Stem hollow, 1-3 in. high.—*M. J. B.* (*Fig.* 321.)

1939. Morchella crassipes. *Pers.* "Gigantic Morel."

Pileus subconic, brown, base adnate, ribs irregular, undulated, thick; pits polymorphous, large, deep, the bottom cellulose-plicate; stem large, tall, inerassated at the base, lacunose, attenuated upwards, smooth, somewhat flesh-coloured.—*Pers. Syn. p.* 621. *B. & Br. Ann. N.H. no.* 1151. *Smith Seem. Journ.* 1868, *t.* 73. *Vent. p.* 509, *f.* 2. *Fr. S.M.* ii. *p.* 9. *Krombh. t.* 16, *f.* 1.

In a hedgerow. April. S. Devon. Esculent.

Sporidia oval, yellow, depressed (·0007-·0008 in.) ·017-·02 m.m. long (·00032-·00042 in.). ·007-·01 m.m. broad. The substance of the flesh is not so firm as that of *M. esculenta*, and not so readily dried; it becomes moist and is apt to decompose.—*W.G.S.* Attains a height of nine in. or more, and is remarkable for its grooved stem.

1940. Morchella patula. *Pers.* "Spreading Morel."

Pileus obtuse, free to the middle, pits rhomboid; stem even. —*Fr. S.M.* ii. *p.* 10. *Nees. f.* 164. *Sow. t.* 51 *(partly). Eng Fl.* v. *p.* 183. *Bisch. f.* 3301.

In woods, &c. Rare.

Obtusely and broadly conic; stem 2 in. high; cells even within.

1941. Morchella semiliberа. *D.C.* "Half-free Morel."

Pileus conical, free to the middle, ribs longitudinal, forming oblong pits, which are veined within; stem even; sporidia large, oval.—*Fr. S.M.* ii. *p.* 10. *Mich. t.* 84, *f.* 3. *Vent. t.* 11, *f.* 105, 106. *Grev. t.* 89. *Eng. Fl.* v. *p.* 183. *Morchella hybrida. Sow. t.* 238. *Kl. exs. no.* 232.

Under hedges, &c. Esculent.

Pileus when young conic or sub-globoso-conic, yellowish-olive, the reticulations formed by ribs running down with tolerable regularity from the apex, oblong, with a few wrinkles within; stem short, thickest at the base, slightly furfuraceous; pileus when mature 1½ in. high, nearly as broad, darker, free for rather more than half its height, reticulations still oblong, but occasionally some are rhomboidal; sporidia large, oval, yellowish; stem 5 in. or more high, 1 in. thick at the base, hollow, pitted and wrinkled below, more or less grooved through its whole length, flexuous, slightly tinged with reddish brown, decidedly furfuraceous, crisp; taste pleasant.—*Eng. Fl.*

Gen. **287.** **GYROMITRA**, Fr.

Fig. 322.

Receptacle inflated, bullate, rough, with raised gyrose ribs.—*Berk. Outl. p.* 358. (*Fig.* 322.)

1842. Gyromitra esculenta.
Fr. "Edible Gyromitra."

Pileus inflated, irregular, undulated, gyroso-rugose, brown, margin adnexed to the even, villous stem; sporidia uniseriate, oblong-ovate, with two nuclei.—*B. & Br. Ann. N. H. no.* 825. *Helvella esculenta, Fr. S.M.* ii. *p.* 16. *Schæff. t.* 160? *Fckl. exs. no.* 2087. *Tratt. Essb. t. C.C. Kl. exs. no.* 138. *Badh.* ii. *t.* 12, *f.* 3-5.

In pine woods. April. Rare. Weybridge.

(*Fig.* 322.)

Gen. **288.** **HELVELLA**, Linn.

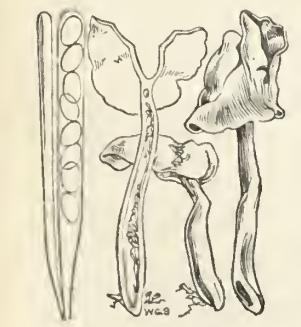


Fig. 323.

Receptacle pileate, hanging down over the stem; concave and barren below; hymenium even.—*Fr. S.M.* ii. *p.* 13. *Berk. Outl. p.* 358. (*Fig.* 323.)

1943. Helvella gigas. *Kromb.*
"Large Helvella."

Pileus large, lobed, undulate, plicate or crisp, pallid, whitish or ochraceous; lobes sub-adnate, adpressed to the stem; stem thick, cellular, waxy, whitish, laeunose,

nearly smooth; asci rather large; spores large, oval, granular. —*Krombh. t.* 20. *Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 25. *Ann. N.H. no.* 1060.

On the ground. Blackheath Park.

Very variable in colour.

1944. Helvella crispa. *Fr.* "Pallid Helvella."

Pileus deflexed, lobed, at length free, crisped, pallid; stem fistulose, costato-lacunose; asci sub-clavate; sporidia ovate, hyaline, granular.—*Vent. t.* 11, *f.* 110. *Corda. Anl. t. G. f.* 67, 7-8. *Bisch. f.* 3274. *Fckl. exs. no.* 1242. *Fr. S.M.* ii. *p.* 14. *Berk. Outl. t.* 21, *f.* 4. *Grev. t.* 143. *Sow. t.* 39. *Ray. Syn. ed.* 3, *p.* 8, *no.* 59. *Schæff. t.* 282. *Bull. t.* 466. *Fl. Dan. t.* 1560. *Cooke B.F. f.* i. *Mich. t.* 86, *f.* 7. *Gled. t.* 2, *f.* 3. *Batt. t.* 2, *f.* 9. *Tratt. Ess. t. D. D. Eng. Fl.* v. *p.* 184. *Price. t.* 7, *f.* 47. *Badh.* i. *t.* 14, *f.* 2, ii. *t.* 5, *f.* 1. *Smith E.M. f.* 16. *Vent. t.* 31, *f.* 1, 2. *Rav. exs.* vi. *no.* 75. *Berk. exs. no.* 264.

In woods. Common. Esculent. [S. Carolina.]

Pileus whitish, flesh coloured, or yellowish. Stem 3-5 in. high, snowy-white, deeply lacunose and ribbed, the ribs hollow.—*Eng. Fl.*

1945. Helvella lacunosa. *Afz.* "Cinereous Helvella."

Pileus inflated, lobed, cinereous black, lobes deflexed, adnate; stem fistulose, costato-lacunose; asci cylindrical, stipitate; sporidia ovate, hyaline.—*Badh.* i. *t.* 14, *f.* 1. *Fl. Boruss. t.* 383. *Vent. t.* 31, *f.* 4-5. *Fl. Dan. t.* 1968, *f.* 1. *Bail. t.* 21. *Fckl. exs. no.* 1241. *Price t.* 16, *f.* 100. *Fr. S.M.* ii. *p.* 15. *Holms.* ii. *t.* 24. *Schæff. t.* 154, *t.* 162. *Nees. f.* 163. *Cooke B.F. f. k. Eng. Fl.* v. *p.* 184. *Grev. t.* 36. *Berk. exs. no.* 265.

In woods. Common. Esculent. [Low. Carolina.]

Stem white or dusky.

1946. Helvella sulcata. *Afz.* "Sulcate Helvella."

Pileus deflexed, lobed, adnate; stem stuffed, equal, sulcate; spores broadly elliptic.—*Afz. t.* 10, *f.* 1. *Fr. S.M.* ii. *p.* 15. *Batt. t.* 3, *f. B. B. & Br. Ann. N.H.* 1866, *no.* 764, 1152.

On the ground. Oct. Bowood. [Mid. Carolina.]

Spores very broadly elliptic, with a single large globose nucleus (·0006-·0007 in.) ·015-·017 m.m. long. Solitary, rarely gregarious, smooth. Stem 2 in. long, 4-5 lines thick, attenuated upwards, longitudinally sulcate; pileus deflexed, equally 2-3 lobed, even, compressed, darker when dry.—*B. & Br.*

1947. Helvella elastica. *Bull.* "Peziza-like Helvella."

Pileus free, even, inflated, at length acutely lobed; stem elongated, thin, attenuated, pruinose.—*Fl. Dan.* 1608, *f.* 2. *Corda.* v. *f.* 70. *Corda. Anl. t.* 67, *f.* 4-6. *Cooke exs. no.* 233. *Kl. exs. no.* 137. *Fr. S.M.* ii. *p.* 21. *Bull. t.* 242. *Bolt. t.* 95. *Sow. t.* 154. *Schæff. t.* 220. *Eng. Fl.* v. *p.* 184. *Ann. N.H. no.* 86. *Fckl. exs. no.* 2086. *Kromb. t.* 21, *f.* 21. *Berk. exs. no.* 266.

In woods.

Much resombling in some of its forms *Peziza macropus.* (*Fig.* 323.)

1948. Helvella ephippium. *Lev.* "Minute Helvella."

Small; pileus deflexed, lobed, decidedly velvety beneath.—*Lev. Ann. Sc. Nat. ser.* ii. *vol.* xvi. *p.* 240, *t.* 14, *f.* 7. *B. & Br. Ann. N.H. no.* 552. *Schæff. t.* 321. *Rav. exs.* vi. *no.* 74.

On the ground in wood. Spring and autumn. [S. Carolina.]

Scarcely 1 in. high. Very near to *H. elastica*, and differs principally in its dwarf size and decidedly velvety coat.—*B. & Br.*

Gen. **289.** **VERPA,** Swartz.

Receptacle clavato-plicate, hollow below, and inflated, or conical and adpressed, equally deflexed all round; hymenium rugulose, but not costate, or nearly even.—*Berk. Outl. p.* 359. (*Fig.* 324.)

Fig. 324.

1949. Verpa digitaliformis. *Pers.* "Finger-shaped Verpa."

Pileus campanulate, finger-shaped, rugulose, umber; stem equal, transversely squamulose; sporidia yellowish, elliptic.—*Fr. S.M.* ii. *p.* 24. *Pers. M.E. t.* 7, *f.* 1-3. *Berk. Outl. t.* 21, *f.* 6. *Corda. Sturm. t.* 7, *t.* 6. *Eng. Fl.* v. *p.* 184. *Pay. f.* 380. *Kl. exs. no.* 1629.

Under hedges. Rare.

Pileus at first nearly even, olivaceous-umber, dark at the apex; stem obese, furnished at the base with a few subrufous radicles, white, with a slight rufous tinge marked with transverse rufous spots, smooth to the naked eye, but under a lens clothed with fine adpressed flocci, the rupture of which gives rise to the spots which are, in fact, minute scales. In the mature plant the pileus is ¾ in. high, campanulate, digitaliform, or subglobose, more or less closely pressed to the stem, but always free, the edge sometimes inflexed so as to form a white border, wrinkled, but not reticulated, under side

slightly pubescent; sporidia yellowish, elliptic; stem 3 in. high, ⅛ in. or more thick, slightly attenuated downwards, loosely stuffed, by no means hollow. - *Eng. Fl.* (*Fig.* 324.)

1950. Verpa conica. *Sow.* "Yellow-stemmed Verpa."

Pileus campanulate, nearly even, brown; margin subsinuated, yellow beneath, as well as the equal stem.—*Fr. S.M.* ii. *p.* 24. *Sow. t.* 11. *Fl. Dan. t.* 654. *Eng. Fl.* v. *p.* 185. *Corda. Sturm. t.* 11.

On the ground. Rare.

Gen. **290. MITRULA,** Fr.

Fig. 325.

Soft and fleshy, simple, capitate; stem distinct; hymenium surrounding the inflated club.—*Berk. Outl. p.* 360. (*Fig.* 325.)

1951. Mitrula cucullata. *Fr.* "Hooded Mitrula."

Head ovate, hood-shaped, even, sub-ferruginous; stem thread-shaped; asci elongated-clavate; sporidia narrowly laneeolate, hyaline, with 2-3 nuclei.—*Krombh. t.* 5, *f.* 23-24. *Berk. Outl. p.* 360. *Batsch. f.* 132. *Cooke exs. no.* 232. *Sow. t.* 84. *Berk. exs. no.* 254. *Pers. Disp. t.* 3, *f.* 12. *Grev. t.* 81. *Fr. S.M.* i. *p.* 492. *Geoglossum cucullatum. Eng. Fl.* v. *p.* 179. *Fl. Dan. t.* 1670, *f.* 2. *Rabh. exs. no.* 37. *Bisch. f.* 3378. *Fckl. exs. no.* 1237.

Amongst fir leaves.

Often overlooked from its small size.

1952. Mitrula paludosa. *Fr.* "Marsh Mitrula."

Head ovate, obtuse, inflated, even, orange; stem pale, hollow; asci linear; sporidia laneeolate, hyaline.—*Fr. S.M.* i. *p.* 491. *Ray. Syn. p.* 23. *Bull. t.* 463, *f.* 3. *Sow. t.* 293. *Dicks. t.* 9, *f.* 10. *Pers. Syn. t.* 3, *f.* 15. *Fl. Dan. t.* 1377. *Grev. t.* 312. *Berk. exs. no.* 278. *Huss.* i. *t.* 9. *Eng. Fl.* v. *p.* 180. *Bail. t.* 21. *Kl. exs. no.* 238. *Fckl. exs. no.* 1236. *Rav. exs.* v. *no.* 36.

On leaves, in ditches, &c. Local. [S. Carolina.]

Pileus very variable in form, hollow, of a delicate bright orange-yellow; asci linear, containing about four linear truncate sporidia.—*Grev.* (*Fig.* 325.)

Gen. **291.** **SPATHULARIA,** P.

Fig. 326.

Disc capitate, compressed, running down into the stem on either side.—*Berk. Outl. p.* 360. (*Fig.* 326.)

1953. Spathularia flavida. *Pers.* "Yellow Spathularia."

Head spathulate, compressed, even, yellow; stem whitish; asci clavate; sporidia linear, multi-nucleate, curved.—*Corda* ii. *f.* 125. *Krombh. t.* 5, *f.* 22. *Price t.* 5, *f.* 34. *Fr. S.M.* i. *p.* 491. *Berk. Outl. t.* 21, *f.* 7. *Grev. t.* 165. *Pay. f.* 21-375. *Schæff. t.* 149. *Schmid. t.* 50, *f.* 1. *Sow. t.* 35. *Berk. exs. no.* 257. *Schm. exs. no.* 194. *Nees. f.* 156 *A.B. Eng. Fl.* v. *p.* 179. *Kl. exs. no.* 815. *Corda. Anl. t. G. f.* 66, 6-10. *Fckl. exs. no.* 1143.

In fir woods. July—October.

Mostly gregarious, 3-5 in. high; pileus hollow, yellow, rarely reddish, much compressed, more or less of an erect obovate form, slightly inflated, undulated or even lacunose, sometimes bifid, or inclining to be lobed. The stem appears to pass along and eventually penetrate the pileus half way or near the summit; sporidia discharged elastically.—*Grev.* (*Fig* 326.)

Gen. **292.** **LEOTIA,** Hill.

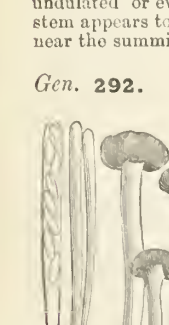


Fig. 327.

Receptacle pileate, supported in the centre by the stem; margin revolute, covered everywhere with the smooth, somewhat viscid hymenium.—*Berk. Outl. p.* 360. (*Fig.* 327.)

1954. Leotia lubrica. *Pers.* "Slimy Leotia."

Tremelloid; pileus swollen, repand, greenish yellow; stem hollow, subequal, yellow; asci cylindrical; paraphyses branched; sporidia oblong, obtuse, curved, hyaline.—*Fr. S.M.* ii. *p.* 29. *Berk. Outl. t.* 22, *f.* 1. *Grev. t.* 56. *Corda.* ii. *f.* 126. *Rav. exs.* vi. *no.* 77. *Vaill. t.* 11, *f.* 7-9. *Cooke*

exs. no. 23. *Mich. t.* 82, *f.* 2. *Berk. exs. no.* 255. *Bull. t.* 473, *f.* 2. *Fckl. exs. no.* 1138. *Sow. t.* 70. *Nees. f.* 162. 144 *B. Pers. M.E. t.* 9, *f.* 4-7. *Fl. Dan. t.* 719. *Eng. Fl.* v. *p.* 186. *Corda. Anl. t. G. f.* 66, 15-17. *Kl. exs. no.* 911. *Price t.* ii. *f.* 10.

In woods. Common. [S. Carolina.]

Varying greatly in size and form; stem at first pulpy within, sometimes squamulose.—*M. J. B.* (*Fig.* 327.)

Gen. **293.** **VIBRISSEA,** Fr.

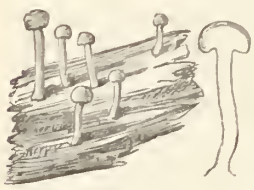


Fig. 328.

Receptacle capitate, supported in the centre by the stem, covered above with the hymenium; margin adnate to the stem; asci and filiform sporidia bursting forth, and rendering the hymenium velvety. —*Berk. Outl. p.* 361. (*Fig.* 328.)

1955. Vibrissea truncorum. *Fr.* "Golden Vibrissea."

Simple; head orbicular, golden yellow; stem cylindrical, glaucous, then blackish.—*Fr. S.M.* ii. *p.* 31. *Bisch. f.* 3374. *Bail. t.* 21. *Corda. Anl. t. G. f.* 66, 1-2. *A. & S. t.* 3, *f.* 2. *Pers. M.E. t.* 11, *f.* 9. *Moug. exs. no.* 781. *Eng. Fl.* v. *p.* 186.

On wood in water. Rare. [Mid. Carolina.]

Receptacle 1-2 lines broad, barren beneath; stem 2 lines—1 in. or more high.—*M. J. B.* (*Fig.* 328.)

Gen. **294.** **GEOGLOSSUM,** P.

Fig. 329.

Receptacle clavate, simple, confluent with the stem; hymenium surrounding the club.—*Berk. Outl. p.* 361. (*Fig.* 329.)

1956. Geoglossum viride. *P.* "Green Geoglossum."

Subfasciculate, verdigris-green, clubs distinct; stem squamulose; sporidia elliptic, colourless.—*Fr. S.M.* i. *p.* 489. *Grev. t.* 211. *Fl. Dan. t.* 1258. *f.* 1. *Eng. Fl.* v. *p.* 179. *Holms.* i. *p.* 24, *with fig. Pers. Comm. t.* 3, *f.* 3. *Ditm. Sturm. t.* 48. *Bisch. f.* 3389. *Pay. f.* 379. *Schnzl. t.* 16, *f.* 11, 12. *Kl. exs.*

no. 1613. *Nov. Act.* (1842), *t.* 57, *f.* 146-148. *Fckl. exs. no.* 1140. *Krombh. t.* 54, *f.* 26-27.

In woods.

1957. Geoglossum olivaceum. *P.* "Olive Geoglossum."

Smooth, dry, dingy-olive; clubs compressed, distinct.—*Fr. S.M.* i. *p.* 489. *Ann. N.H. no.* 765. *Price t.* 16, *f.* 102.

var. β. **purpureum.** Dingy purple.—*Berk. Outl. t.* 22, *f.* 3.

On lawns. Oct. Rare.

Sporidia (·0006 in.) ·015 m.m. long.

1958. Geoglossum glutinosum. *P.* "Glutinous Geoglossum."

Smooth, blackish; clubs compressed, distinct; stem viscid. —*Fr. S.M.* i. *p.* 489. *Eng. Fl.* v. *p.* 178. *Kl. exs. no.* 641, ii. *no.* 319.

Grassy places. Rare.

Stem nearly equal, 1 in. or more high, clothed with tenacious gluten, reddish brown, inclining to black; receptacle somewhat lanceolate, obsoletely viscid, blacker than the stem.—*Fries.*

1959. Geoglossum viscosum. *P.* "Viscid Geoglossum."

Smooth, viscid, black; clubs cylindrical, confluent with the stem; sporidia linear, rounded at the ends, curved, triseptate, pale-brown.—*Fr. S.M.* i. *p.* 489. *Eng. Fl.* v. *p.* 178. *Grev. t.* 55. *Loud. f.* 16186. *Fckl. Sym. Myc. p.* 333.

Moist meadows, pastures, &c.

1960. Geoglossum glabrum. *P.* "Smooth Geoglossum."

Smooth, dry, blackish; stem subsquamulose; sporidia fasciculate, linear-fusiform, 3-4 septate, dark brown.—*Krombh. t.* 5, *f.* 20, 21. *Price t.* 3, *f.* 17. *Fckl. exs. no.* 1142. *Eng. Fl.* v. *p.* 178. *Fr. S.M.* i. *p.* 488. *Vaill. t.* 7, *f.* 5. *Mich. t.* 87, *f.* 4. *Bull. t.* 372. *Clav. ophioglossoides, Bolt. t.* 111, *f.* 2. *Fl. Dan. t.* 1076, *f.* 2. *Schm. exs. no.* 47. *Corda. Anl. G. f.* 65, 1-4. *Bisch. f.* 3379. *Kl. exs. no.* 239.

Grassy places. [Mid. Carolina.]

1961. Geoglossum hirsutum. *P.* "Hairy Geoglossum."

Black, hairy; head confluent with the stem; sporidia fasciculate, elongated fusiform, somewhat curved, 15-septate, dark brown.—*Corda.* ii. *f.* 124. *Eng. Fl.* v. *p.* 178. *Fr. S.M.* i. *p.* 488.

Sow. t. 85. *Schæff. t.* 327. *Nees. f.* 157. *Schm. exs. no.* 122. *Mich. t.* 87, *f.* 3. *Berk. Outl. t.* 22, *f.* 2. *Corda. Anl. G. f.* 65, *f.* 5-8. *Bisch. f.* 3380-3384. *Loud. f.* 16184. *Rav. exs.* vi. *no.* 79. *Fckl. exs. no.* 1141.

Amongst grass. Common. [S. Carolina.]

1962. Geoglossum difforme. *Fr.* "Twisted Geoglossum."

Smooth, even, subviscid, black; club compressed, distinct; sporidia linear, curved, tri-septate, pale-brown.—*Krombh. t.* 54, *f.* 28, 29. *Fr. S.M.* i. *p.* 489. *Berk. exs. no.* 256. *Eng. Fl.* v. *p.* 178. *Kl. exs.* ii. *no.* 424. *Price t.* 18, *f.* 117.

Amongst grass. Sept.—Oct. [United States.]

Receptacle compressed, lanceolate, hollowed out on either side, distorted, distinct, smooth, very slightly viscid, dark brown-black, 1 in. or more long. Stem equal, cylindrical, but little compressed, 1¼ in high, 2 lines thick; sporidia as in *G. viscosum*.—*M.J.B.* (*Fig.* 329, *nat. size.*)

Gen. **295.** **RHIZINA,** Fr.

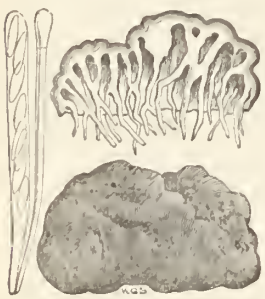


Fig. 330.

Crustaceous, effused, then bullato-inflated, underset with root-like fibrils.—*Fr. S.V.S.*

Receptacle effused, crustaceous, bullate, concave beneath, furnished with numerous root like fibrillæ; margin deflexed; hymenium occupying the whole of the superior surface, even, persistent; asci fixed, large; sporidia ovato-oblong, with two sporidioli; stem none; pileus convex, subrotund, determinate, margin at first byssoid; substance fleshy.—*Fr. S.M.* ii. *p.* 33. (*Fig.* 330.)

1963. Rhizina undulata. *Fr.* "Waved Rhizina."

Effused, undulated, bay-brown; margin inflexed, flocculose beneath and pallid; asci linear, eight spored; sporidia fusiform, binucleate; paraphyses claviform.—*Fr. S.M.* ii. *p.* 33. *Tul. Hyp. t.* 21, *f.* 16. *B. & Br. Ann. N.H. no.* 1076. *Intell. Obs. no.* 25. *Curr. Linn. Trans.* xxiv. *p.* 493, *t.* 51, *f.* 7-9. *Rabh. exs. no.* 39.

On sandy banks where the heath had been burnt down. Ascot. [S. Carolina.]

Some of the specimens have a raised yellow margin, as in *R. lævigata*, but this vanishes with age. Sporidia colourless or yellowish (·0012-·0014 in.) ·025-·03 m.m. long. (*Fig.* 330.)

Gen. **296.** **PEZIZA**, Linn.

Fig. 331.

Cup-shaped; cup more or less concave, soon open; disc naked; asci fixed.—*Fr. S.M.* ii. *p.* 40.

Fries divides this genus into three groups, with the following distinguishing characteristics :—

(*Fig.* 331.)

Externally pruinose or floccoso-furfuraceous	*Aleuria.*
Externally pilose or villous	*Lachnea.*
Externally almost naked, smooth	*Phialea.*

Series 1. **Aleuria.**, Fr.

Fleshy or carnoso-membranaceous, externally pruinose, or floccoso-furfuraceous. Mostly terrestrial.

Stem firm, sulcate, elongated	*Macropodes.*
Subsessile, oblique, or twisted	*Cochleatæ.*
Subsessile, regular	*Cupulares.*
Small, somewhat fleshy, margin flocculose	*Humaria.*
More or less coriaceous	*Encœlia.*

Tho last section, *Encœlia*, scarcely accords with the characters of the series.

Sec. 1. *Macropodes*—stem firm, sulcate, or elongated:

1964. Peziza acetabulum. *L.* "Reticulated Peziza."

Cyathiform, dingy, ribbed externally with branching veins, which run up from the short, lacunose, fistulose stem.—*Fr. S.M.* ii. *p.* 44. *Fckl. exs. no.* 1231-2084. *Sow. t.* 59. *Vaill. t.* 13. *f.* 1. *Bull. t.* 485, *f.* 4. *Eng. Fl.* v. *p.* 187. *Acetabula vulgaris, Fckl. Sym. Myc. p.* 330.

On the ground in spring. Esculent. [Low. Carolina.]

Cup 2 in. broad, 1½ in. high, externally floccoso-furfuraceous, light-umber, darker within, mouth contracted, firm, tough, flesh not very thick; stem ½ in. high, smooth, deeply, but regularly costato-lacunose, the ribs branching at the top and forming reticulations on the outside of the cup, so as to present the appearance of a cluster of pillars supporting a font or roof, with fret-work between them.—*Eng. Fl.* Sporidia ·016-·024 × ·012-·016 m.m.—*Nyl.* (*Fig.* 331.)

1965. Peziza macropus. *Pers.* "Long stemmed Peziza."

Cup hemispherical, hirto-verrucose, cinereous; disc mouse-coloured; stem very long, attenuated; sporidia ellipsoid.—*Fr. S.M.* ii. *p.* 57. *Buxb.* iv. *t.* 29, *f.* 2. *Eng. Fl.* v. *p.* 189. *Bull. t.* 457, *f.* 2, *t.* 196. *Sow. t.* 38. *Schæff. t.* 166. *Bolt. t.* 96. *Pers. Obs.* ii. *t.* 1, *f.* 2. *Fl. Dan. t.* 1200, *f.* 2. *Holms.* ii. *t.* 10. *Fckl. exs. no.* 1234. *Grev. t.* 70. *Macropodia macropus, Fckl. Sym. Myc. p.* 331. *Cooke exs. no.* 289.

On the ground in woods. Common. [United States.]

Varying greatly in the degree of pubescence, occasionally the border of the pileus is reflexed, and there is then no small degree of resemblance to *Helvella elastica.—Eng Fl.*

Sporidia ·022-·027 × ·011-·014 m.m. *Nyl.* Sporidia ellipsoid ·02-·027 × ·011-·014 m.m. (·0007-·0009 × ·00035 in.) paraphyses filiform, thickened at the apex. *Karst.*

1966. Peziza tuberosa. *Bull.* "Tuberous Peziza."

Thin, cup infundibuliform, bright brown, turning pale; stem elongated, springing from an irregular black tuber (sclerotium).—*Fr. S.M.* ii. *p.* 58. *Hedw. t.* 10, *f. B. Berk. exs. no.* 153. *Bull. t.* 485. *f.* 2, 3. *Sow. t.* 6, 3. *Rabh. exs. no.* 1522. *Gonn. & Rabh.* iii. *t.* 1, *f.* 1. *Fckl. exs. no.* 1235. *Huss.* ii. *t.* 10. *Moug. & N. exs.* 397. *Eng. Fl.* v. *p.* 189. *Sclerotinia tuberosa, Fckl. Sym. Myc. p.* 331.

On the ground in woods. Spring. [Mid. Carolina.]

Stem running deep into the earth, 1-3 in. high, attached to a *Sclerotium.* Sporidia oblong-ellipsoid, simple, ·008-·016 × ·005-·009 m.m. (·0003-·0006 × ·00019-·00035 in.)—*Karst.*

1967. Peziza rapulum. *Bull.* "Wine-cup Peziza."

Thin, yellowish-brown, cup infundibuliform, nearly smooth; stem twisted, root elongated, fibrillose.—*Fr. S.M.* ii. *p.* 59. *Bull. t.* 485, *f.* 3. *Nees. f.* 291. *Holms.* ii. *t.* 9. *Eng. Fl.* v. *p.* 189.

On the ground. Rare. [Low. Carolina.]

Observed only by Dickson.

Sect. 2. *Cochleatæ*—subsessile, pruinose, oblique, or twisted.

1968. Peziza venosa. *P.* "Veined Peziza."

Sessile, somewhat twisted, dark umber, white beneath, rugose with costate veins.—*Fr. S.M.* ii. *p.* 46. *Jacq. Mis. t.* 17, *f.* 1. *Berk. Outl. t.* 22, *f.* 6. *Grev. t.* 156. *Huss.* ii. *t.* 7. *P. reticulata, Eng. Fl.* v. *p.* 187.

On the ground in spring. Esculent?

Many inches broad. Odour strong, like that of nitric acid.

1969. Peziza badia. *P.* "Large brown Peziza."

Subsessile, entire, flexuose, brown, margin at first involute, externally pruinose, paler, inclining to olive (as well as the margin); sporidia oblong-ovate, epispore rough.—*Fr. S.M.* ii. *p.* 46. *Vaill. t.* 11; *f.* 3. *Bolt. t.* 99. *Berk. Outl. t.* 22, *f.* 4. *Huss.* ii. *t.* 13. *Eng. Fl.* v. *p.* 187. *Gonn. & Rabh.* iii. *t.* i. *f.* 3. *Rabh. exs. no.* 337.

Margin of ponds. Summer. [Up. Carolina.]

Variable in colour. 1-2 in. broad, subcæspitose, irregular, slightly pruinose externally, villous at the base, and often lacunose; disc occasionally porous, extremely changeable in colour, often, in the same individual, changing from rufous to a beautiful olive, brownish, &c.—*Fries.*

Sporidia ellipsoid, rough ·016-·02 × ·008-·011 m.m. (·0005-·0007 × ·0003 in.)—*Nyl.*

Sporidia ellipsoid, rough ·015-·02 × ·008-·011 m.m.—*Karst.*

Sporidia ·0178-·02 × ·009 m.m.—*G. & R.*

1970. Peziza phlebophora. *B. & Br.* "Small-veined Peziza."

Cups poculiform, oblique, substipitate, finely pulverulent, venoso-costate at the base.—*B. & Br. Ann. N.H.* (1866), *no.* 1153, *t.* 3, *f.* 9.

On clay banks. King's Cliffe, Brislington.

Cup ½-1½ in. across, often rather oblique, yellow or brownish, springing from a very short, stem-like base, from which branched ribs are given off, ending in little pits; sporidia (·0004 in.) ·01 m.m. long; hymenium often venose.

1971. Peziza cochleata. *Huds.* "Whorled Peziza."

Sessile, cæspitose, large, twisted, umber, externally pruinose; sporidia oblong-ovate.—*Fr. S.M.* ii. *p.* 50. *Buxb.* iv. *t.* 29, *f.* 1. *Bull. t.* 154, *f.* 2. *Sow. t.* 5. *Sv. Bot. t.* 486, *f.* 2. *(Schæff. t.* 274, *var.) Eng. Fl.* v. *p.* 188.

Amongst grass. [United States.]

Sporidia ·015-·016 × ·006-·007 m.m (·0005 × ·0002 in.)—*Nyl.*

Sporidia ·006-·007 m.m. broad, 1-1½ times as long.—*G. & R.*

1972. Peziza succosa. *Berk.* "Pale Milky Peziza."

Cup nearly regular, entire, pale waxy-brown, externally white and pruinose; juice bright yellow; asci elongated, slightly flexuose; sporidia ovate, with two nuclei.—*Berk. Ann. N.H. no.* 156, *t.* 10, *f.* 5. *Berk. Outl. p.* 363.

On the ground, in gardens. Norths. [Low. Carolina.]

Cup one in. in diameter, hemispherical or subglobose, with the margin incurved, within of a pale waxy brown, without paler and mealy. The flesh when broken pours out a yellow juice.—*M. J. B.*

1973. Peziza leporina. *Batsch.* "Brown-ear Peziza."

Substipitate, elongated on one side, ear-shaped, sub-ferruginous, externally farinose, internally, and base even.—*Fr. S.M.* ii. *p.* 47. *Schæff. t.* 156. *Fl. Dan. t.* 1077, *f.* 2. *Fckl. exs. no.* 1233. *Nees. f.* 278. *Holms.* ii. *t.* 6. *Rabh. F.E. no.* 512. *Otidea leporina. Fckl. Sym. Myc. p.* 329.

On the ground, in wood.

Sometimes cinereous or yellowish; sporidia (·0006 in.) ·015 m.m. long, with curved paraphyses.
Sporidia ·018-·031 × ·009-·014 m.m.—*Nyl.*
Sporidia ellipsoid ·018-·03 × ·009-014 m.m. with one or two nuclei (·0006-·0011 × ·00035-·0005 in.—*Karst.*
Sporidia ·009·013 m.m. broad, and about twice as long.—*G. & R.*

1974. Peziza onotica. *P.* "Orange-ear Peziza."

Substipitate, elongated on one side, ear-shaped, externally mealy, internally rosy or orange, base at length rugose; sporidia oblong-ovate.—*Fr. S.M.* ii. *p.* 48. *Fl. Boruss. t.* 396. *Sturm.* iii. *t.* 16. *Sv. Bot. t.* 436, *f.* 1. *P. leporina. Sow. t.* 79. *Eng. Fl.* v. *p.* 187. *Rabh. F.E. no.* 215. *Otidea onotica. Fckl. Sym. Myc. p.* 329.

On the ground, in woods. Rare. Coed Coch.
[Mid. Carolina.]

Cup 3-4 in. high; sporidia ·011-·015 × ·007-·009 m.m.—*Nyl.*
Sporidia ellipsoid, ·015-·021 × ·008-·011 m.m. with one or two nuclei.—*Karst.*
Sporidia (·0005 in.) ·0127 m.m. long.

1975. Peziza aurantia. *Fr.* "Orange Ground Peziza."

Subsessile, irregular, oblique, orange, externally somewhat pruinose, whitish; sporidia elliptic, rough.—*Fr. S.M.* ii. *p.* 49. *Sterb. t.* 26, *f. D. Schæff. t.* 148. *Bull. t.* 474. *Fl. Dan. t.* 657, *f.* 2. *Fckl. exs. no.* 1228. *Nees. f.* 179. *Batsch. f.* 157. *Fl. Boruss. t.* 384. *Holms.* ii. *t.* 7. *P. coccinea. Sow. t.* 78. *Bolt. t.* 100. *Cooke B.F. front. Huss.* i. *t.* 37. *Eng. Fl.* v. *p.* 187. *Gonn. & Rabh.* iii. *t.* 2, *f.* 3. *Aleuria aurantia. Fckl. Sym. Myc. p.* 325.

On the ground, in woods. Common. [Cincinnati.]

At first hemispherical, with a short stem, margin almost involute, at length split, curled, and flexuous, of the clearest orange within; externally ale, mealy, with minute sparkling granules. – *Eng. Fl.*

Sporidia ellipsoid, ·012·016 × ·008·01 m m. (004-·005 × ·0003 in.) with two nuclei.—*Karst.*

Sporidia ·020-·023 × ·009-·011 m.m.—*G. & R.*

1976. Peziza luteo-nitens. *B. & Br.* "Bright Yellow Peziza."

Crowded, bright yellow; cups concave, nearly regular, at length flexuose; asci linear; sporidia elliptic, with two nuclei; paraphyses filiform; apices slightly clavate.—*B. & Br. Ann. N.H. no.* 556. *Berk. Outl. p.* 364.

On the bare ground. Rare. King's Cliffe.

Bright orange yellow, when very young globose, then concave, gradually becoming irregular, and at length flexuous, smooth externally, ¼-½ in. broad, resembling at first sight stunted specimens of *P. aurantia*, but essentially different, not only as proved by the habit, but the smooth, not echinulate or pointed sporidia.—*B. & Br.*

1977. Peziza fibrillosa. *Curr.* "Woolly Orange Peziza."

Cup 1 in. broad, nearly sessile, irregular, orange, clothed externally with dingy-white downy fibrillæ, which form a rather dense tomentose edging to the cup; spores quite smooth, elliptical without nuclei; paraphyses filiform, enlarged spherically at the apex.—*Curr Linn. Trans.* xxiv. *p.* 153.

On the ground. Oct., 1861. Hanham wood.

In some of the asci I noticed a cupulate depression at the summit. Allied to *P. aurantia*, from which it differs in the woolly external covering, and smooth sporidia.

Sporidia (0006-·0007 in.) ·015-·017 m.m. long.—*F. C.*

Sect. 3. *Cupulares.* Subsessile, regular.

* *Pustulatæ.*

1978. Peziza repanda. *Wahl.* "Spreading Peziza."

Large, incised, waved, brown, internally somewhat wrinkled, brown, externally farinose, whitish; base elongated, rooting; sporidia oblong-ovate, rough.—*Fr. S.M.* ii. *p.* 51. *Jacq. Misc. t.* 10. *Grev. t.* 59. *Eng. Fl.* v. *p.* 188. *Pers. Ic. Pict. t.* 20, *f.* 2 ? *Plicaria repanda. Fckl. Sym. Myc. p.* 328.

On the ground, and stumps.

Variable in size; pileus when splitting never convolute.

Sporidia ·010-·014 × ·006·007 m.m.—*Nyl.* 1.

Sporidia ·015-·018 × ·008-·009 m.m. (·0005-·0006 × ·0003 in.)—*Nyl.* 2.

1979. Peziza cerea. *Sow.* "Waxy Peziza."

Large, infundibuliform, waved, yellowish, externally whitish, as well as the villous, stem-like base.—*Fr. S.M.* ii. *p.* 52. *Sow. t.* 3. *Eng. Fl.* v. *p.* 188. *Plicaria cerea. Fckl. Sym. Myc. p.* 327. *Gonn. & Rabh.* iii. *t.* 2, *f.* 1. *Fckl. exs. no.* 1225.

On tan beds, &c. Rare.

Abundantly on leaves, &c., in a hothouse, at Uffington, Lincolnshire. March. Very brittle.
Sporidia ellipsoid, ·017-·018 × ·007-·009 m.m. (·0006 × ·00027-·00035 in.)—*Nyl. Karst.*
Sporidia ellipsoid, ·008-·009 m.m. broad, and about twice as long.—*G. & R.*

1980. Peziza vesiculosa. *Bull.* "Bladdery Peziza."

Large, entire, sessile, at first globose, somewhat top-shaped, connivent; then campanulate; mouth suberenate, pallid brown, externally furfuraceous; sporidia elliptic.—*Fr. S.M.* ii. *p.* 52. *Bull. t.* 457, *f.* 1. *Mich. t.* 36, *f.* 2. *Sow. t.* 4. *Grev. t.* 107. *Bolt. t.* 175 ? *Eng. Fl.* v. *p.* 188. *Pustularia vesiculosa. Fckl. Sym. Myc. p.* 329.

On dung-hills, hot-beds, &c. Common. [Mid. Carolina.]

The hymenium is generally separable from the substance of the cup.
Sporidia (·0009 in.) ·022 m.m. long.
Sporidia ellipsoid, ·017-·022 × ·009-·014 m.m. (·0006-·0007 × ·00035-·0004 in.—*Nyl.*)
Sporidia ellipsoid ·016-·022 × ·009-·004 m.m.—*Karst.*
Sporidia ·011-·014 m.m. broad, and twice as long.—*G. & R.*

1981. Peziza macrocalyx. *Riess.* "Violet Ground Peziza."

At first buried, then half exposed; cups subglobose, splitting in a stellate manner, externally dirty blue, subtomentose, internally violet; stem short; asci cylindrical, truncate; sporidia elliptic, with one or two nuclei; paraphyses branched, jointed. —*Fres. Beitr. p.* 75, *t.* 9, *f.* 7. *Smith Seem. Journ.* 1869, *p.* 345, *t.* 98. *Fckl. exs. no.* 2196. *Sarcosphæra macrocalyx. Fckl. Sym. Myc. p.* 329.

Under fir trees. March.

"It is found underground, in forests of fir trees, singly or from two to five together; in its progressive development it rises about half out of the ground. At first it is closed, but later it splits, starlike, from the top downwards to the middle of its cups, or sometimes even further down still into from 7 to 10 more or less pointed strips. The exterior is of a dirty pale blue, clothed with a thin white transient fur, and at the base of the cup is a short stem. In large specimens the cup is three inches high and broad, deeply cup-shaped, with the rim at length bent outwards. The hymenium is at first pale, and later a darker violet. Sporidia ·025 m.m. long.—*Fresenius.*

1982. Peziza bufonia. *Pers.* "Warty Brown Peziza."

Large, bright brown, externally verrucose; stem short, rooting, becoming pallid.—*Pers. M.E. p.* 225. *Berk. Gard. Chron. Jan.* 13, 1866. *B. & Br. Ann. N.H.* (1866), *no.* 1154, *t.* 3, *f.* 12.

On rubbish heaps. Grantham.

A fine species, agreeing in size and colour with *P. umbrina*, externally rough, with conical warts, opaque, and of a dingy earth-colour, somewhat resembling *P. vesiculosa*, but distinguished by the brown hymenium and verrucose cup. Sporidia (·00075-·0008 in.) ·018-·02 m.m. long.—*B. & Br.*

1983. Peziza micropus. *Pers.* "Short-footed Peziza."

Middle-sized, oblique, dingy, pallid, externally squamulose, mealy; base stem-like; asci very long, cylindrical; sporidia oblong-ovate, with two nuclei.—*Fr. S.M.* ii. *t.* 51. *Pers. Ic. & Des. t.* 8, *f.* 5. *Berk. Outl. t.* 22, *f.* 5. *Pustularia micropus. Fckl. Sym. Myc. p.* 328.

On beech stumps. Rare. [Mid. Carolina.]

1984. Peziza trachycarpa. *Curr.* "Rough-spored Peziza."

Orbicular, then plane, very often umbilicate; disc blackish-brown, rough, tuberculate, externally minutely granulated; sporidia uniseriate, globose, muricate.—*Curr. Linn. Trans.* xxiv. *t.* 51, *f.* 3. *B. & Br. Ann. N.H.* (1865) *no.* 1061, *t.* xiv. *f.* 13. *Rabh. exs. no.* 620.

On burnt soil. Ascot.

Cups ⅛-¼ in. broad, adpressed to the soil, sub-stipitate, or obconic; sporidia uniseriate, globose, muricate, brown, ·012-·016 m.m. (·0005-·0007 in.) diameter. Though the sporidia are brown under the microscope, when thrown down on black paper they are of a whitish-grey.

1985. Peziza leiocarpa. *Curr.* "Smooth-spored Peziza."

Cup at first connivent, sub-globose, externally (principally towards the margin) rough, vinous-brown, thin, semi-pellucid, sometimes pallid near the base, at length expanded, almost plane; hymenium olive-brown; sporidia globose, even.—*Curr. Linn. Trans.* xxiv. *t.* 51, *f.* 6. *B. & Br. Ann. N.H.* (1865) *no.* 1062, *t.* xiv. *f.* 14. *Rabh. exs. no.* 622.

On burnt soil. Ascot. Weybridge.

Cup 1½-2½ in. broad; hymenium at first pale, then dark olive-brown; sporidia uni-or biseriate, globose, perfectly even, ·0076-·01 m.m. (·0003-·0004 in.) diameter. Resembling at first *P. pustulata.*—*Batsch*

1986. Peziza pustulata. *Pers.* "Dingy Peziza."

Sessile, subglobose, pallid, somewhat dingy, externally whitish, mealy; margin entire; sporidia oblong-ovate; epispore granulose.—*Fr. S.M.* ii. *p.* 55. *Hedw. Mus. f. r. t.* 6, *f. A. Batsch. f.* 157. *Fckl. exs. no.* 1227. *Plicaria pustulata, Fckl. Sym. Myc. p.* 327.

On the ground. Rare. [Mid. Carolina.]

1987. Peziza radula. *B. & Br.* "Black warted Peziza."

Large, cup-shaped, sessile, at length depressed, externally black and rough with sub-equal warts, vinous-brown within; sporidia globose, tuberculate.—*B. & Br. Ann. N.H.* xviii. *p.* 77. *Berk. Outl. p.* 364.

On the ground in woods. Rare. Near Bristol.

Cup depressed, sessile, nearly an in. across, black externally, broken into nearly equal, distinct, sub-conical warts, like those of *Genea verrucosa*. Hymenium of a dark vinous brown; asci large, obtuse; sporidia large, globose, containing a single nucleus, rough with obtuse, distinct tubercles; paraphyses septate, with the ultimate articulation clavate.—*B. & Br.*

1988. Peziza viridaria. *B. & Br.* "Greenish Peziza."

Middle-sized; mycelium floccose, expanded, white; cups at first globose, then hemispherical, at length expanded, watery-grey, externally rough with brown furfuraceous particles; asci linear; sporidia widely elliptic.—*B. & Br. Ann. N.H. no.* 555. *Berk. Outl. p.* 364.

On damp walls and water butts. Rare. King's Cliffe.

Cups at first globose, then hemispherical, at length expanded, ¼-½ in. broad, pale watery brown or cinereous, sessile, springing from a white cottony effused stratum.—*B. & Br.*

** *Pruinosæ.*

1989. Peziza carbonaria. *A. & S.* "Charcoal Peziza."

Globoso-campanulate, even, reddish-ochre, externally subpruinose; margin mealy or crenate.—*Fr. S.M.* ii. *p.* 64. *B. & Br. Ann. N.H.* (1865), *no.* 1063, *t.* 15, *f.* 15. *Rabh. F.E. no.* 622. *Gonn. & Rabh.* iii. *t.* 4, *f.* 4.

On burnt ground. Ascot.

Gregarious, thin, fragile, 3-8 lines broad, almost smooth, sometimes sessile, sometimes elongated into a slender stem; colour variable, more or less intense, when young almost vermillion internally; asci cylindrical, narrow; sporidia elliptic, smooth; paraphyses narrowly clavate.

Sporidia ellipsoid ·013-·017 × ·006-·009 m.m.—*Nyl.*
Sporidia ellipsoid ·013-·017 × ·006-·009 m.m. (·0005-·0006 × ·00023-·00035 in.—*Karst.*
Sporidia ·011 m.m. broad, and twice as long.—*G. & R.*

1990. Peziza cupularis. *L.* "Scalloped Peziza."

Sub-sessile, thin, globoso-campanulate, fawn coloured, or pallid, externally farinose; margin crenate.—*Fr. S.M.* ii. *p.* 62. *B. & Br. Ann. N.H. no.* 308. *Vaill. t.* 11, *f.* 173. *Fckl. exs. no.* 1878. *Bull. t.* 596, *f.* 3. *Pers. Obs.* ii. *t.* 4, *f.* 6, 7. *Eng. Fl.* v. *p.* 189. *Gonn. & Rabh.* iii. *t.* 4, *f.* 1. *Pustularia cupularis, Fckl. Sym. Myc. p.* 328.

On the ground in gardens. [Low. & Mid. Carolina.]

Sometimes yellowish. Stem ¼ in. high, ⅛th in. thick, sometimes obsolete. Pileus pale buff, thin, transparent, scallopod at the edge, shapod like the cup of an acorn, about 1 in. in diameter.—*Withering.*
Sporidia ellipsoid, ·014-·02 × ·01-·012 m.m. (·0005-·0007 × ·0003 in.)—*Karst.*
Sporidia ·01-·012 m.m. broad, and about twice as long.—*G. & R.*

1991. Peziza saniosa. *Schrad.* "Brown-milky Peziza."

Sessile, concave, milky, purplish-brown, externally pulverulent, umber; asci linear; sporidia oval, with two nuclei.—*Fr. S.M.* ii. *p.* 65. *Schrad. Journ.* 1799, *p.* 64. *Berk. Mag. Zool. & Bot. no.* 87, *t.* 7, *f.* 2.

On ground overrun with *Thelephora sebacea.* Autumn. King's Cliffe.

1992. Peziza argillacea. *Sow.* "Clay Peziza."

Sessile, yellowish, even, at first urceolate, at length cracked and torn, rooting at the base, and hairy.—*Fr. S.M.* ii. *p.* 66. *Sow. t.* 148. *Eng. Fl.* v. *p.* 190.

On modelling clay.

Pileus 2 in. broad, held to the clay by very fine, attenuated, cobweb-like fibres from the sides, as it were, to assist the little knobby root.—*Sowerby.*
Observed only by Sowerby.

1993. Peziza cornubiensis. *B. & Br.* "Downy-base Peziza."

Middle sized, sessile, fixed by down; margin alone free, somewhat flattened, minutely villous externally; hymenium orange; asci sub-cylindrical; sporidia oblong, rather rough.—*Berk. Outl. p.* 366. *Ann. N.H. no.* 767.

On manured ground. Penzance.

Sessile, ¾ in. broad, depressed, attached to the soil by villous down; margin free, clothed with delicate, obtuse, articulate hairs; hymenium orange; sporidia (·0009-·0007 in.) ·022-·0177 m.m. long.—*B. & Br.*

Sect. 4. *Humaria*—small, somewhat fleshy, margin subflocculose.

1994. Peziza rutilans. *Fr.* "Splendid Peziza."

Sub-sessile, middle-sized, campanulate, then expanded, externally finely pubescent, pallid; disc orange red; sporidia at length echinulate.—*Fr. S.M.* ii. *p.* 68. *Ray. Syn. p.* 19, *no.* 14. *Karst. exs. no.* 527. *Karst. Mon. Pez. p.* 116. *Fckl. exs. no.* 1222. *Eng. Fl.* v. *p.* 190. *Peziza humosa, B. & Br. Ann. N.H. no.* 768, *t.* 3, *f.* 13, *no.* 1154. *Berk. Eng. Fl.* v. *p.* 191. *Sow. t.* 369, *f.* 2. *Bolt. t.* 101, *f.* 1. *Purt. t.* 25. *P. leucoloma, Sturm. t.* 17.

On the ground. [Mid. Carolina.]

Sporidia (·0009-·001 in.) ·022-·025 m.m. long (·0004-·0005 in.) ·01-·0125 m. m. broad when perfectly developed, strongly echinulate with one or more nuclei. Cups nearly ½ in. broad, at first round, even, disciform, at length somewhat lobed and crisped, thick and fleshy, in vertical section obconic; margin pale, but not involute; disc of a full orange, externally paler, very minutely pulverulent. Sporidia rough with granules, ·021-·027 × ·013-·016 m.m.—*Nyl. Karst.*

1995. Peziza melaloma. *A. & S.* "Black-edged Peziza."

Sessile, crowded, concave, then nearly plane, dingy-orange, margin furnished with very delicate black hairs; spores ellipsoid.—*A. & S. t.* 2, *f.* 5. *Fr. S.M.* ii. *p.* 69. *Eng. Fl.* v. *p.* 190. *Ann. N.H. no.* 88. *Karst. exs. no.* 550. *Karst. Mon. Pez. p.* 123. *Rabh. F.E. no.* 723. *Fckl. exs. no.* 1221. *Pyronema melalomum. Fckl. Sym. Myc. p.* 319.

On charcoal. [Up. Carolina.]

Paraphyses numerous, thickened at their apices.
Sporidia ellipsoid, ·014-·018 × ·008-·009 m.m.—*Nyl.*
Sporidia ellipsoid, ·015-·018 × ·007-·009 m.m.—*Karst.*

1996. Peziza erecta. *Sow.* "Cylindrical Peziza."

Sessile, crowded, subcylindrical, smooth, yellowish, at length dilated, mouth erect, subciliate.—*Fr. S.M.* ii. *p.* 69. *Sow. t.* 369, *f.* 10, 11. *Eng. Fl.* v. *p.* 194.

On shaded ground.

Cup 2 lines high, oblong and upright, but sometimes short and clumsy, often spreading, sometimes destitute of hairs, sometimes ciliated, sometimes furnished with both hairs and cilia, varying from deep red to greenish yellow and pale yellow.—*Sowerby.*

1997. Peziza polytrichi. *Schum.* "Heath Peziza."

Subsessile, orbicular, somewhat concave, vermillion, externally paler, furnished with fasciculate flocci; sporidia sphæroid.—*Fr. S.M.* ii. *p.* 70. *B. & Br. Ann. N.H. no.* 1156*. *Fl. Dan. t.* 1916, *f.* 1. *Karst. Mon. Pez. p.* 121. *Gonn. & Rabh. t.* 4, *f.* 3.

On heaths. Scotland.

Paraphyses clavate above, and orange-brown, granuloso.
Sporidia sphærical, at first finely granulated, ·014-·016 m.m.—*Nyl. Karst.*

1998. Peziza aggregata. *B. & Br.* "Crowded Peziza."

Gregarious, confluent, obconical, orange, whitish tomentose at the base; hymenium concave; sporidia fusiform.—*B. & Br. Ann. N.H.* (1866), *no.* 1155.

On heathy ground. Berwick.

The peculiar crowded habit and fusiform sporidia (·0008 in.) ·02 m m. long by (·0003 in.) ·007 m.m. wide, easily distinguish this species.

1999. Peziza subhirsuta. *Schum.* "Hirsute Peziza."

Sessile, gregarious, nearly plane, orange-yellow, paler beneath, clothed with a few scattered, almost obsolete, hairs; asci linear; sporidia smooth, elliptic, enucleate; paraphyses slightly clavate. *Fr. S.M.* ii. *p.* 70. *B. & Br. Ann. N.H.* (1866), *no.* 1156, *t.* 3, *f.* 14. *Fl. Dan. t.* 1787, *f.* 2. *Karst. Mon. Pez. p.* 123. *Desm. exs.* i. *no.* 462. *Fckl. exs. no.* 1220. *Pyronema subhirsutum. Fckl. Sym. Myc. p.* 320.

On the ground. Batheaston.

Sporidia (·0006 in. long), ·014-·02 m.m. long, ·08-·01 m.m. broad.
Sporidia ellipsoid ·015-·02 × ·008-·01 m.m.—*Nyl*
Sporidia ellipsoid, ·014-·02 × ·008-·01 m.m.—*Karst.*

2000. Peziza leucoloma. *Reb.* "White-edged Peziza."

Sessile, scattered, concave, then plane, red, margin minutely laciniate, white; sporidia ellipsoid.—*Fr. S.M.* ii. *p.* 71. *Hedw. t.* 4, *f. A. Nees. f.* 268. *Eng. Fl.* v. *p.* 191. *B. & Br. Ann. N.H. no.* 1156*, *t.* 3, *f.* 16, *no.* 768. *Karst. exs. no.* 537. *Karst. Mon. Pez. p.* 122. *Fckl. exs. no.* 1219. *Gonn. & Rabh.* iii. *t.* 4, *f.* 7. *Cooke exs. no.* 229. *Leucoloma Hedgwigii. Fckl. Sym. Myc. p.* 317.

On the ground.

Sporidia (·0006-·0008 in.) ·09-·013 m.m. long (·0004 in.) ·08-·011 m.m. wide.—*Karst.*
Sporidia sphærical, ·011-·013 m.m. diameter.—*G. & R.*

2001. Peziza humosa. *Fr.* "Ground Peziza."

Sessile, fleshy, concave, then plane, smooth, blood-red, margin quite entire; sporidia variable in size; paraphyses highly developed, clavate at the tips, often furcate, or bearing curious processes at their side.—*Fr. S.M.* ii. *p.* 71. *Eng. Fl.* v. *p.* 191. *Fl. Dan. t.* 656, *f.* 2. *B. & Br. Ann. N.H. no.* 1156*, *t.* 3, *f.* 15. *Batsch. f.* 220? *Bolt. t.* 101, *f.* 1. *Sow. t.* 369, *f.* 2. *P. punicea. Purt. t.* 25. *P. Polytrichi. B. & Br. Ann. H.N. no.* 768, *t.* 16, *f.* 14*. *Crouania humosa. Fckl. Sym. Myc. p.* 320.

On the ground.

Sporidia (·0006-·001 in. long, by ·0003-·0005 in. wide), ·015-·025 m.m. long, by ·007-·01 m.m. wide.

2002. Peziza Wrightii. *Berk. & Curt.* "Wright's Peziza."

Cups hemispherical, at length plane, carmine, externally furfuraceous, granulated; sporidia globose or subglobose, when young even, adult echinulate; paraphyses slender, branched.—*Ann. N.H.* 1865, *no.* 1064, *t.* xv. *f.* 16.

On trunks of trees, covered with *Hypnum serpens.* March. Bodelwyddan. [Texas, U.S.]

Sporidia (·00045-·0006 in.) ·01-·015 m.m. diameter.

2003. Peziza glumarum. *Desm.* "Chaff Peziza."

Delicate, crowded, when young conico-globose, clad with white flocci, at length concave, somewhat flat, smooth, flexuous, orange-yellow, margin sublaciniate, whitish; asci cylindrical; sporidia ovate.—*Ann. Sc. Nat. ser.* ii. *vol.* xv. *p.* 129. *Desm. exs. no.* 1054, ii. *no.* 454. *B. & Br. Ann. N.H. no.* 768.

On chaff in a farm-yard. Dec. Batheaston.

Sporidia ·016·023 × ·009-·011 m.m.—*Nyl.*

2004. Peziza omphalodes. *Bull.* "Charcoal Peziza."

Sessile, crowded, cups minute, nearly plane, sub-umbilicate, clothed with fugacious white down; asci clavate; sporidia elliptic.—*Fr. S.M.* ii. *p.* 75. *Bull. t.* 485, *f.* 1. *Gonn. & Rabh.* iii. *t.* 3, *f.* 6. *Fckl. exs. no.* 1218. *Cooke exs. no.* 326. *Rabh. F.E. no.* 268, 708. *Pers. Obs.* ii. *t.* 5, *f.* 6, 7. *Karst. exs. no.* 256. *Karst. Mon. Pez. p.* 120. *Desm. exs.* i. *no.* 428. *Thelephora carbonaria. Eng. Fl.* v. *p.* 169. *Pyronema marianum. Carus. Berk. Mag. Zool. & Bot. no.* 9. *Nov. Act. Curz.* xvii. *t.* 27. *Pyronema omphalodes. Fckl. Sym. Myc. p.* 39. *Pyronema confluens. Tul. Carp.* iii. *p.* 197.

On burnt soil. [Mid. & Up. Carolina.]

Asci highly developed; paraphyses containing globose, orange-coloured granules.
Sporidia ellipsoid, ·011-·015 × ·007-·008 m.m.—*Karst.*
Sporidia ellipsoid, ·011-·013 × ·007-.0085 m.m.—*G. & R.*

2005. Peziza granulata. *Bull.* "Granulated Dung Peziza."

Sessile, minute, nearly plane, orange-red, externally granulated with papillæ; asci clavate, obtuse; sporidia broadly elliptic; paraphyses orange-red; apices clavate.—*Fr. S.M.* ii. *p.* 67. *Ray. Syn. t.* 24, *f.* 2. *Vaill. t.* 15, *f.* 14. *Fl. Dan. t.* 655, *f.* 2. *Bull. t.* 438, *f.* 3. *Eng. Fl.* v. *p.* 190. *Desm. exs. no.* 270. *Ascobolus granulatus. Fckl. Sym. Myc. p.* 287.

On cow dung. Common. [Mid. Carolina.]

Gregarious, at first globose, at length flat; orifice crenate, varying somewhat in colour, but generally of a clear orange-red, externally granulated from the projection of the cellular tissue, furfuraceous.—*Eng. Fl.*
Sporidia ellipsoid, ·014-·018 × ·007-·009 m.m.—*Nyl.*
Sporidia ellipsoid, ·014-·018 × ·007-·009 m.m. (·0005-·0006 × ·00027-·00035 in.)—*Karst.*

2006. Peziza brunneo-atra. *Desm.* "Brown Black Peziza."

Sessile, solitary, nearly plane, entire, fleshy, fragile, smooth, brown-black; asci cylindrical; sporidia ovate, subhyaline, minutely echinulate.—*Ann. Sc. Nat.* (1836). vi. *p.* 244. *Desm. exs. no.* 826, ii. *no.* 26. *B. & Br. Ann. N.H.* (1866), *no.* 1157, *t.* 4, *f.* 18.

On the ground. Leigh wood.

Sporidia (·0007-·0009 in.) ·017-·022 m.m. long.
Many modern authors include this with *Peziza badia.*

2007. Peziza salmonicolor. *B. & Br.* "Salmon-colour Peziza."

Small, gregarious; cups sub-hemispherical, salmon-colour; asci oblong; sporidia biseriate, elliptic, enucleate.—*B. & Br. Ann. N.H.* (1866), *no.* 1158, *t.* 4, *f.* 19.

On the side of a ditch. Oct. Woodnewton.

Sporidia (·0008 in.), ·02 m.m. long, sometimes (·0005 in.) ·0127 m.m. broad; nearly allied to *P. hæmastigma.*

2008. Peziza hæmastigma. *Fr.* "Blood-red Peziza."

Sessile, convex, immarginate, smooth, pale blood-red; sporidia oblong, or nearly globose.—*Fr. S.M.* ii. *p.* 74. *Hedw. t.* 5, *f. B.*

B. & Br. Ann. N.H. (1866), *no.* 1159, *t.* 4, *f.* 20. *Sturm.* xxxiii. *t.* 11.

On cottage walls. Sept. N. Wales.

Asci short, oblong, subclavate; sporidia bisoriate (·0006 by ·0009 in.), ·015 by ·022 m.m. or nearly globose.—*B. & Br.*

Sect. 5. *Encœlia*—more or less coriaceous.

2009. Peziza fascicularis. *A. & S.* "Crisped Peziza."

Cæspitose, sessile, membranaceous or coriaceous, irregular, rugose, blackish, externally rather mealy; sporidia cylindrical, oblong.—*Fr. S.M.* ii. *p.* 75. *Fckl. exs. no.* 1128. *Berk. exs. no.* 154. *A. & S. t.* 12, *f.* 2. *Eng. Fl.* v. *p.* 191. *Rabh. F.E. no.* 721. *Karst. exs. no.* 69. *Karst. Mon. Pez. p.* 129. *Dermatea fascicularis, Fckl. Sym. Myc. p.* 278. *P. crispa, Sow. t.* 425. *f.* 1, 2. *Purt. t.* 7.

On branches, bursting through the bark.

Cup 2-4 lines broad, generally in tufts resembling in form the convolutions of the human brain, but sometimes scattered and solitary, growing upon the bark, not upon the wood, beneath the epidermis.—*Eng. Fl.*
Sporidia oblong, curved, ·011-·016 × ·0035 m.m.—*Nyl.*
Sporidia cylindrico-oblong, ·011-·016 × ·003 m.m.—*Karst.*

2010. Peziza furfuracea. *Fr.* "Branny Peziza."

Sessile, between fleshy and coriaceous, externally pallid, mealy; margin involute, entire; disc cinnamon-blackish.—*Fr. S.M.* ii. *p.* 76. *Eng. Fl.* v. *p.* 192. *Roth.* ii. *t.* 9, *f.* 3. *Karst. exs. no.* 326. *Karst. Mon. Pez. p.* 129. *Fckl. exs. no.* 1842. *Rav. exs.* vi. *no.* 86. *Dermatea furfuracea, Fckl. Sym. Myc. p.* 278.

On alder branches.

Varying greatly in size from 1½ lines to ½ an in. broad.
Sporidia subcylindrical, curved, ·006-·01 × ·002 m.m. (·00023-·0003 × ·00007 in.) with 2-5 nucleoli.—*Karst.*

2011. Peziza fraxinicola. *B. & Br.* "Ash-twig Peziza."

Scattered or clustered; cups externally pale-fawn colour, furfuraceous, internally brown; hymenium slightly depressed; sporidia uniseriate, elliptic.—*B. & Br. Ann. N.H.* (1866), *no.* 1160, *t.* 4, *f.* 21.

On ash twigs. Northamptonshire.

Cups at first closed, then opening with an irregular aperture, at length orbicular, slightly depressed, pale fawn colour, and furfuraceous externally, umber-brown within; asci elongated, clavate; sporidia uniseriate, elliptic (·00045 in.) ·012 m.m. long.—*B. & Br.*

Series 2. **Lachnea**, Fr.

Veil distinct, decidedly villous, or pilose, persistent; cup, in consequence, bristly or hairy, always closed when young; substance waxy, firm, rarely fleshy.—*Berk. Outl. p.* 367.

Fleshy, or between fleshy and waxy . . .	*Sarcoscyphæ.*
Waxy, dry, externally villous	*Dasyscyphæ.*
Nestling on a dense mycelium	*Tapesia.*
Externally fibrose-striate, with adpressed hairs .	*Fibrina.*

Sect. 1. *Sarcoscyphæ*—fleshy, or between fleshy & waxy.

2012. Peziza coccinea. *Jacq.* "Carmine Peziza."

Cup infundibuliform, externally, as well as the stem, whitish, tomentose, with short, adpressed down; disc carmine; sporidia oblong.—*Fr. S.M.* ii. *p.* 79. *Jacq. Autr. t.* 169. *Eng. Fl.* v. *p.* 192. *Bolt. t.* 104. *Fckl. exs. no.* 1213. *Buxb.* iv. *t.* 29, *f.* 4. *Nees. f.* 288. *Batt. t.* 3, *f. N.O. Ray. Syn.* iii. *p.* 19. *no.* 15. *Grev. t.* 161. *P. epidendra, Bull. t.* 469. *Sow. t.* 13. *P. poculiformis, Hoffm. Cr. t.* 7, *f.* 5. *Gonn. & Rabh.* iii. *t.* 4, *f.* 5. *Plectania coccinea, Fckl. Sym. Myc. p.* 324.

On sticks. Spring. Local. [Up. Carolina.]

Cup 1 in. or more broad, deep carmine within; stem ½-1 in. high. Sporidia ellipsoid-oblong, ·028-·038 × ·011-·014 m.m.—*Nyl. Karst.* Sporidia ·012-·014 m.m. broad, and about twice as long.—*G. & R.*

2013. Peziza melastoma. *Sow.* "Black and red Peziza."

Cup fleshy; disc urceolate, black, externally brick-red flocculose; stem short, rooting by means of thick black, strigose down.—*Fr. S.M.* ii. *p.* 80. *Sow. t.* 149. *Eng. Fl.* v. *p.* 192. *Fckl. exs. no.* 1214, 1215. *A. & S. t.* 1, *f.* 4. *P. atro rufa. Grev. t.* 315. *Plectania melastoma, Fckl. Sym. Myc. p.* 324.

On sticks lying on the ground. Rare.

This species varies greatly as to degree of pubescence, being sometimes almost naked, sometimes beset with down, or even bristly hairs; the base, however, is always furnished with long, black, rooting, strigose filaments.—*Eng. Fl.*

Asci very long, stipitate; sporidia oblong, hyaline.—*Fckl.*

2014. Peziza pygmea. *Fr.* "Furze Peziza."

Cup concave, at length plane, orange externally, as well as the somewhat thickened stem, tomentose, pallid; sporidia small, fusiform, without nuclei.—*Fr. S.M.* ii. *p.* 79. *B. & Br. Ann. N.H.* (1865), *no.* 1066, *t.* 15, *f.* 18, *no.* 1160*, *t.* 4, *f.* 22.

On dead twigs of *Ulex*, buried in the sandy soil. Nov. Ascot.

Cup 3-6 lines broad. The stem varies in length according to the depth at which the twig is buried. Sporidia uniseriate, linear-oblong (·0005-·0006 in.) long; about ¼ in. high when full grown, stipitate, the stem branching out or dividing into several heads, which form cups. The cups are often proliferous, producing smaller cups on their surface, of a bright apricot colour, but whitish towards the margin.—*B. & Br.*

2015. Peziza radiculata. *Sow.* "Rooting Peziza."

Subcæspitose, fleshy, sessile, hemispherical, then expanded; disc sulphureous externally, as well as the thick root, white, villous.—*Fr. S.M.* ii. *p.* 81. *Sow. t.* 114. *Eng. Fl.* v. *p.* 192. *B. & Br. Ann. N.H.* (1866), *no.* 1160*, *t.* 4, *f.* 23. *Rabh. exs. no.* 618.

In fir wood. Jedburgh.

Sporidia (·0005 in.) ·0127 m.m. long, rather broad, binucleate.—*B. & Br.*
Somewhat reticulated externally, with irregular prominent veins, 1 in. or more broad.—*Eng. Fl.*

2016. Peziza hemispherica. *Wigg.* "Hemispherical Peziza."

Sessile, hemispherical, waxy, externally brownish, clothed with dense, fasciculate hairs; disc glaucous-white.—*Fr. S.M.* ii. *p.* 84. *Fckl. exs. no.* 1211. *Eng. Fl.* v. *p.* 193. *Mich. t.* 86, *f.* 4. *Bull. t.* 204, 396, *f.* 2. *Fl. Dan. t.* 1558, *f.* 2, 656, *f.* 1. *Hedw.* ii. *t.* 4, *f. B. Schaff. t.* 151, *t.* 319. *Hoffm. Cr.* ii. *t.* 7, *f.* 6. *P. hispida, Sow. t.* 147. *P hirsuta Holms.* ii. *t.* 19. *Humaria hemisphærica, Fckl. Sym. Myc. p.* 322.

On the ground. [Mid. & Up. Carolina.]

Cup 2 lines—1 in. broad, varying much in colour.
Sporidia ellipsoid ·023-·026 × ·011-·013 m.m.—*Nyl. Karst.*

2017. Peziza lanuginosa. *Bull.* "Woolly Peziza."

Cup broad, thin, waxy, fragile, sessile, ferruginous beneath, woolly, of a greyish-white within, cup-shaped; sporidia shortly and bluntly fusiform.—*Bull. t.* 396, *f.* 2.

var. **Sumneri.** Cup at length radiato-fissured; margin when young narrow, naked.—*B. & Br. Ann. N.H.* (1866) *no.* 1161, *t.* 4, *f.* 25.

Under cedars and larch. Jan.—May.

A large and magnificent species, acquiring frequently a diameter of 2 in. and combining in some measure the characters of *P. sepulta* and *P. hemisphærica*, from both of which it differs in the subfusiform fruit. In plants which are just open a delicate veil is often found stretched over the orifice.

At first entirely buried, then forcing its way through the soil, and splitting into several lobes, like a *Geaster*, which it much resembles from its thick substance. The outer coat is densely clothed with flexuous hairs, the sporidia are shortly and bluntly fusiform.—*B. & Br.*

2018. Peziza geaster. *B. & Br.* "Starry Peziza."

Brown; cup sub-globose, floccose, at length fissured in a radiate manner; asci linear; sporidia elliptic; paraphyses clavate.—*B. & Br. Ann. N.H.* (1866), *no.* 956 *and* 1162, *t.* 4, *f.* 26 (*not Gonn. & Rabh.* iii. *t.* 3, *f.* 5.)

On the ground. Oct. Wentworth.

About an in. across; hairs flexuous, branched, articulated, often giving out little curved, hyaline processes, with a few straight bristles intermixed. Hymenium brown; paraphyses clavate; sporidia elliptic, with the ends very slightly attenuated (·0009 in.) ·022 m.m. long.—*B. & Br.*

At first referred in error to *Geopyxis*.—*Ann. N.H. no.* 956.

2019. Peziza sepulta. *Fr.* "Broken Peziza."

Hypogæous, globose, clothed with dense woolly fibres; hymenium at length exposed by the rupture of the upper portion; asci cylindrical; sporidia elliptic, with one, two, or sometimes several nuclei.—*Fr. M.SS. Ann. N.H. no.* 766. *Berk. Outl. p.* 365.

On the ground. Nov. East Bergholt.

One or two in. across, the upper portion often breaking off irregularly, and so exposing the disc.—This is a far coarser species than *P. Geaster*. Sporidia (·0009 in. by ·0004 in.) ·022 × ·01 m.m.—*B. & Br.*

2020. Peziza brunnea. *A. & S.* "Brown Peziza."

Sessile, hemispherical, then depressed, sub-flexuose, brown, externally hairy, with short fasciculate hairs.—*Fr. S.M.* ii. *p.* 85. *A. & S. t.* 9, *f.* 8. *Eng. Fl.* v. *p.* 193. *Sturm.* ii. *t.* 28? *Fckl. exs.* 1217. *P. hybrida. Sow. t.* 369, *f.* 1. *Humaria brunnea. Fckl. Sym. Myc. p.* 323.

On the ground. [Mid. Carolina.]

Cups 1-3 lines broad, often flexuous by reason of the dense mode of growth, when young subglobose, but soon more expanded and depressed, hairs less distinct, scarcely ciliating.—*Fries.*

Sporidia sphærical, ·013-·017 m.m.—*Nyl. Karst.*

2021. Peziza hirta. *Sch.* "Hairy brown Peziza."

Sessile subhemispherical, externally brown, hairy, margin somewhat inflexed, internally scarlet; sporidia elliptic, smooth. —*Fr. S.M.* ii. *p.* 84. *Mich. t.* 96, *f.* 14. *B. & Br. Ann. N.H. no.* 557, 768. *P. umbrosa. Rabh. exs. no.* 1011.

On the ground.

Sporidia (·0009 in.) ·022 m.m. long, by (·0005 in.) ·0127 m.m. wide. Other specimens ·0006 by ·0003 in. Differing from *P. trechispora* in its smooth elliptic sporidia.

2022. Peziza trechispora. *B. & Br.* "Rough-spored Peziza."

Depressed, nearly plane, orange-red, externally clothed with pallid, tawny bristles; sporidia globose, echinulate.—*B. & Br. Ann. N.H.* xviii. *p.* 77. *Cooke exs. no.* 288.

On naked ground in woods, or wet banks of rivulets. King's Cliffe. Bristol, &c.

Cup ⅛ in. or more broad, depressed or slightly concave, orange, paler externally, and clothed with rather rigid tawny bristles; asci elongated; sporidia globose (·0008 in.) ·02 m.m. diameter, sharply tuberculate. Paraphyses very slender, linear. Resembles *P. scutellata*, though distinguished at once by its very different sporidia.—*M. J. B.*

2023. Peziza vitellina. *Pers.* "Egg yellow Peziza."

Subcæspitose, large, flexuose, bright yellow, margin setose.—*Fr. S.M.* ii. *p.* 84. *Pers. M.E. p.* 257. *Eng. Fl.* v. *p.* 193. *B. & Br. Ann. N.H.* (1866), *no.* 1163*, *t.* 4, *f.* 29.

On the ground. Autumn. Appin, Warcham.

Sporidia (·0009 in.) ·022 m.m. long, by (·0005 in.) ·0127 m.m.

2024. Peziza umbrata. *Fr.* "Shady Peziza."

Depressed, nearly plane, flesh-coloured or vermillion, clothed externally with short bay bristles; sporidia subglobose, minutely echinulate.—*Fr. S.V.S. p.* 351. *P. umbrosa. Fr. S.M.* ii. *p.* 85. *Mich. t.* 86, *f.* 19. *B. & Br. Ann. N.H.* (1866), *no.* 1163, *t.* 4, *f.* 28. *Rabh. F.E. no.* 217. *Humaria umbrorum. Fckl. Sym. Myc. p.* 322.

On the ground. Berwick.

Sporidia (·0008 in.) ·02 m.m. long (·0007 in.) ·0177 m.m. wide. Paraphyses clavate.
Sporidia ellipsoid, ·014-·018 × ·01-·012 m.m.—*Karst.*

2025. Peziza scutellata. *L.* "Shield-like Peziza."

Becoming plane, vermilion-red, externally paler, hispid towards the margin with straight black hairs.—*Fr. S.M.* ii. *p.* 85. *Ray. Syn. ed.* 2, *p.* 29, *no.* 41. *Fckl. exs. no.* 1210. *Sow. t.* 24. *Bull. t.* 10. *Fl. Dan. t.* 1457, *f.* 2. *Schæff. t.* 284. *Eng. Fl.* v. *p.* 193. *B. & Br. Ann. N.H. no.* 768. *P. ciliata. Hoffm. Cr.* ii. *t.* 7,

f. 5. *Holms.* ii. *t.* 18. *Hedw. t.* 3, *f. B. Humaria scutellata. Fckl. Sym. Myc. p.* 321.

On stumps, &c. [United States.]

Sporidia (·0008 in.) ·02 m.m. long, by (·0005 in.) ·0127 m.m. wide. Cups 3 lines broad.
Sporidia ellipsoid, ·018-·024 × ·010-·014 m.m.—*Nyl.*
Sporidia ellipsoid, ·017-·024 × ·010-·014 m.m.—*Karst.*

2026. Peziza cœrulea. *Bolt.* "Blue Peziza."

Soon becoming plane, cileated, externally blackish, hairs pallid; disc cœrulean blue.—*Fr. S.M.* ii. *p.* 86. *Eng. Fl.* v. *p.* 193. *Bolt. t.* 108, *f.* 2.

On trunks of firs. Oct. Near Halifax.

About 2 lines broad.

2027. Peziza livida. *Sch.* "Livid Peziza."

Hemispherical, becoming plane, internally livid-glaucous, externally dingy, clothed with long strigose hairs.—*Fr. S.M.* ii. *p.* 86. *Batsch. f.* 154. *Ann. N.H. no.* 558. *Fl. Dan. t.* 1915, *f.* 3. *Humaria livida. Fckl. Sym. Myc. p.* 322.

On fir chips. Lockerbie.

A beautiful species with the habit of *P. scutellata*, but with a livid disc, and more convex.—*B. & Br.*

2028. Peziza stercorea. *Pers.* "Red dung Peziza."

Gregarious, concave, dingy-red, beset near the margin, with nearly straight brown hairs, ciliated.—*Fr. S.M.* ii. *p.* 87. *Eng. Fl.* v. *p.* 194. *Ray. Syn. t.* 24, *f.* 3. *P. equina. Fl. Dan. t.* 779, *f.* 3. *Sow. t.* 552. *Hedw. t.* 3, *f. A. P. scutellata. Bolt. t.* 108, *f.* 1. *Bull. t.* 438, *f.* 2. *Humaria stercorea. Fckl. Sym. Myc. p.* 321.

On cow dung. Common. [Mid. Carolina.]

Paraphyses simple, not capitato as in *P. granulata*, which frequently accompanies it; sctæ jointed, yellowish, or greenish in decay, 1-2 lines broad. —*Eng. Fl.*
Sporidia ellipsoid, ·016-·022 × ·009-·01 m.m.—*Nyl. Karst.*

2029. Peziza theleboloides. *A. & S.* "Hop Peziza."

Spherical, then tub-shaped, whitish, mouth concave, dingy-yellowish, externally hispid, with pallid hairs; asci linear; sporidia elliptic.—*Fr. S.M.* ii. *p.* 88. *A. & S. t.* 12, *f.* 4. *Ann. N.H. no.* 1065, *t.* 15, *f.* 17.

On spent hops. [Mid. Carolina.]

Cup at first obovate or subcylindrical, concave, and expanded, when mature, of a bright orange colour within, beset externally with delicate, erect, white hairs, which are hyaline under the microscope, and seated at first on a delicate white subiculum, which disappears as the plant advances to maturity, and the cups become crowded. Sporidia (·0005 in.) ·0127 m.m. long (·00025 in.) ·005 m.m. wide.—*B. & Br.*

2030. Peziza albo-spadicea. *Grev.* "Red-brown and white Peziza."

Sessile, gregarious, globose, at length quite plane; external surface, and margin strigose, with reddish-brown hairs; hymenium white.—*Grev. Fl. Ed. p.* 420. *Eng. Fl.* v. *p.* 194.

On the ground.

About 2 lines broad, globose when young, gradually becoming plane. Hymenium white, smooth, with a slight tinge of grey in moist weather; externally covered with reddish-brown hairs, which form also a border to the hymenium.—*Grev.*

Sect. 2. *Dasyscyphæ.* Waxy, dry, externally villous.

2031. Peziza ciliaris. *Schrad.* "Fringed white Peziza."

Stipitate, cyathiform, snow-white, externally beset with long scattered hairs.—*Schrad. Journ. p.* 65. *Fr. S.M.* ii. *p.* 89. *Fckl. exs. no.* 1209. *Ann. N.H. no.* 559. *Hyalopeziza ciliaris. Fckl. Sym. Myc. p.* 298.

On dead oak leaves. [Mid. Carolina.]

Asci oblong, stipitate; sporidia fusiform, straight or curved, hyaline.—*Fckl.*

2032. Peziza virginea. *Batsch.* "Virgin white Peziza."

Stipitate, white, cup hemispherical, externally beset with crowded patent hairs.—*Fr. S.M.* ii. *p.* 90. *Fckl. exs. no.* 1208. *Eng. Fl.* v. *p.* 194. *Mich. t.* 36, *f.* 15. *Bull. t.* 376, *f.* 3. *Fl. Dan. t.* 1016, *f.* 4. *Holms.* ii. *t.* 14. *P. nivea. Sow. t.* 65. *Gonn. & Rabh.* iii. *t.* 5, *f.* 10. *Dasyscypha virginea. Fckl Sym. Myc. p.* 305.

On stumps, twigs, &c. Common.
[Low. & Mid. Carolina.]

Gregarious; cup 1 line high, externally pilose, the margin cileated, and often studded with dew drops.—*Eng. Fl.*
Sporidia fusiform, ·006-·01 × ·002-·0025 m.m.—*Nyl.*
Sporidia elongated-fusoid, straight, ·005-·01 × ·0015-·0025 m.m.—*Karst.*
Sporidia fusiform, ·002-·0027 m.m. broad, and 3-4 times as long.—*G. & R.*

2033. Peziza nivea. *Fr.* "Snowy Peziza."

Stipitate, white; cup turbinate, externally villoso-tomentose.—*Fr. S.M.* ii. *p.* 90. *Eng. Fl.* v. 195. *Hedw. t.* 8, *f. B. Fl. Dan. t.* 1440, *f.* 2. *Bull. t.* 416, *f.* 5. *Fckl. exs. no.* 1199. *Rav. exs.* vi. *no.* 80. *Peziza Aspidii, Fckl. exs. no.* 1193. *Trichopeziza nivea, Fckl. Sym. Myc. p.* 296.

On stumps, &c. [Low. Carolina.]

Differs from *P. virginia* in the nature of the down; stem less distinct, incrassated upwards, villous; cup less expanded.—*Fries.*
Sporidia fusiform, ·005-·007 × ·0015 m.m.—*Nyl.*
Sporidia straight or curved, ·005-·012 × ·0015 m.m.—*Karst.*

2034. Peziza calycina. *Schum.* "White and orange Peziza."

Stipitate, crumpent, funnel-shaped, externally whitish, villous; disc nearly plane, inclining to orange.—*Fr. S.M.* ii. *p.* 91. *Fckl. exs. no.* 1206. *Batsch. f.* 135. *Hedw. t.* 22. *Berk. exs. no.* 261. *Eng. Fl.* v. 195. *Dasyscypha calycina, Fckl. Sym. Myc. p.* 305. *Rav. exs.* vi. *no.* 83.

On bark of firs. Scotland. [Low. & Mid. Carolina.]

var. β. **abietis.** When fresh of a golden egg-yellow; stem blackish at the base.

On Scotch fir. Appin.

var. γ. **laricis.**

On larch boughs. Scotland.

Cup 1-2 lines broad, varying greatly in colour, and in the length of the stem, often fasciculate.—*Eng. Fl.*
Sporidia fusiform-oblong, ·005-·009 × ·002-·003 m.m.—*Nyl.*
Sporidia fusoid ·005-·009 × ·001-·002 m.m.—*Karst.*

2035. Peziza bicolor. *Bull.* "Two-coloured Peziza."

Subsessile, globose, tomentose, white; disc inclining to orange; sporidia cylindrical, straight.—*Fr. S.M.* ii. *p.* 92. *Eng. Fl.* v. *p.* 195. *Fl. Dan. t.* 779, *f.* 2. *Bull. t.* 410, *f.* 3. *Sow. t.* 17. *Ayres. exs. no.* 55. *Fckl. exs. no.* 1205. *Berk. exs. no.* 155. *Dasyscypha bicolor, Fckl. Sym. Myc. p.* 305.

On dead twigs.

Nylander and Karsten unites this with *P. calycina.*

2036. Peziza cerina. *P.* "Wax-coloured Peziza."

Hemispherical, villose or furfuraceous, yellowish-olive; disc concave, yellow.—*Fr. S.M.* ii. *p.* 92. *Eng. Fl.* v. *p.* 195. *Holms.*

ii. *t.* 20. *Nees. f.* 283. *Moug. exs. no.* 687. *Fl. Dan. t.* 1620, *lower fig. Fckl. exs. no.* 1204. *Dasyscypha cerinea, Fckl. Sym. Myc. p.* 305.

On old rails, branches, &c. [Mid. Carolina.]

Scattered or gregarious; cup closed when dry, clothed with yellow, branny pubescence; stem short or obsolete.—*Eng Fl.*
Sporidia oblong-fusiform, minute, ·005-·007 × ·002-·0025 m.m.—*Nyl.*
Sporidia oblong or elongated, fusoid, ·004-·007 × ·002-·0025 m.m.—*Karst.*

2037. Peziza calyculæformis. *Schum.* "Wine-glass Peziza."

Subinfundibuliform, umber-brown; margin erect, externally villous, as well as the very short, rather thick stem.—*Fr. S.M.* ii. *p.* 94. *B. & Br. Ann. N.H.* (1866), *no.* 959, 1164. *Fl. Dan. t.* 2032, *f.* 2.

On dead wood. May. Twyeross.

"Our plant agrees with Schumacher's in habitat; it is not, however, scattered in growth. It has a decidedly dark-brown stem, which is smooth; and the margin is rather connivent than erect."—*B. & Br.*
Sporidia biseriate ·01-·012 × ·002 m.m.—*Karst.*

2038. Peziza clandestina. *Bull.* "Brownish Peziza."

Stipitate, turbinate, fawn-coloured, externally furfuraceo-villose; disc pallid.—*Fr. S.M.* ii. *p.* 94. *Eng. Fl.* v. *p.* 195. *Johnst. F.B.* ii. *p.* 150. *Fckl. exs. no.* 1202. *Dasyscypha clandestina, Fckl. Sym. Myc. p.* 305.

On dead bramble. [Low. & Mid. Carolina.]

Sporidia oblong-fusiform, ·005-·007 × ·0015 m.m.—*Nyl.*
Sporidia elongato-fusoid, ·005-·008 × ·0015 m.m.—*Karst.*

2039. Peziza caulicola. *Fr.* "Herbaceous Peziza."

Yellowish-brown, pallid; cup between turbinate and globose, farinoso-pubescent; stem short, firm, smooth.—*Fr. S.M.* ii. *p.* 94. *Ann. N. Hist. no.* 310. *Fckl. exs. no.* 1200.

On dead herbaceous stems.

Minute, gregarious, rather firm, persistent, at length becoming smooth. Colour pale, dirty, opaque, yellowish-pallid, umber, &c.
Sporidia fusiform, ·006-·009 × ·0015-·002 m.m.—*Nyl.*
Sporidia elongated, ·006-·009 × ·0015-·002 m.m.—*Karst.*

Peziza acuum. Fr. See *Helotium acuum.*

2040. Peziza albo-violascens. *A. & S.* "Proliferous Peziza."

Subsessile, becoming plane, firm, villous, hairy, generally closed; disc pallid.—*Fr. S.M.* ii. *p.* 96. *Eng. Fl.* v. *p.* 196. *A. & S. t.* 8, *f.* 4. *Lachnella albo-violascens, Fckl. Sym. Myc. p.* 380.

On lilac, &c. [United States.]

Remarkable for the deep black flesh beneath the generally proliferous hymenium, occasionally, when the villosity has vanished, the cup is also black externally.—*Eng. Fl.*

Sporidia subovoid, unequilateral ·011-·016 × ·009-·012 m.m.—*Karst.*

2041. Peziza corticalis. *Pers.* "Bark Peziza."

Sessile, sub-globose, firm, floccuoso-tomentose, cinereous, then rufescent.—*Fr. S.M.* ii. *p.* 96. *Pers. M.E. p.* 267. *Ann. N.H. no.* 311-562. *Fckl. exs. no.* 1120. *Lachnella corticalis, Fckl. Sym. Myc. p.* 280.

On dead bark. [Mid. Carolina.]

Gregarious, persistent, superficial; disc open when moist, hemispherical, reddish; when dry closed, irregular and whitish-grey.

Sporidia fusiform (spuriously uniseptate) ·017-·027 × ·004-·005 m.m.—*Nyl.*

Sporidia straight or slightly curved ·015-·027 × ·004-·005 m.m.—*Karst.*

2042. Peziza tricolor. *Sow.* "Tricolor Peziza."

Hemispherical, marginate; disc yellowish, externally greyish; stem very short, nearly white.—*Sow. t.* 369, *f.* 6. *Fr. S.M.* ii. *p.* 134. *Eng. Fl.* v. *p.* 204. *Berk. Outl. p.* 368. *Peziza Godroniana Mont. Syll. p.* 185. *Berk. Outl. p.* 368—*p.* xvii.

On bark.

2043. Peziza melaxantha. *Fr.* "Black and Yellow Peziza."

Sessile, minute, externally farinaceo-villose, greyish-yellow; disc rather concave, black.—*Fr. S.M.* ii. *p.* 97. *Eng. Fl.* v. *p.* 196.

On fallen branches. Appin.

Gregarious, very minute. At first globoso, greyish-yellow, at length quite flat, border sometimes flexuous in crowded specimens.—*Eng. Fl.*

2044. Peziza hispidula. *Schrad.* "Black hispid Peziza."

Sessile, rather fleshy, slightly hispid, black; disc concave, whitish.—*Fr. S.M.* ii. *p.* 98. *Schrad. Journ. Bot.* 1799, *p.* 64. *Eng. Fl.* v. *p.* 196.

On dead wood. Appin.

Cup sub-carnose, 1-1½ line broad, beset with black shining hairs.—*Fries.*

2045. Peziza Schumacheri. *Fr.* "Schumacher's Peziza."

Sessile, small, hemispherical, tomentose, brown; disc nearly plane, purplish-brown.—*Fr. S.M.* ii. *p.* 98. *Eng. Fl.* v. *p.* 196.

var. β. **plumbea.** Dise lead coloured.—*Grev. t.* 11. *Fl. Dan. t.* 1786, *f.* 1.

On dead wood.

Often much resembling *P. cinerea.*

2046. Peziza rufo-olivacea. *A. & S.* "Brown and olive Peziza."

Sessile, becoming plane, externally villoso-pulverulent, dingy ferruginous-red; dise greenish-olive (at length black).—*Fr. S.M.* ii. *p.* 99. *A. & S. t.* 11, *f.* 4. *Eng. Fl.* v. *p.* 197. *Fckl. exs. no.* 1192. *Velutaria rufo-olivacea. Fckl. Sym. Myc. p.* 300.

On dead bramble. Appin. [Mid. Carolina.]

Sporidia elliptical, uniseriate, binucleate (·0005 in.) ·0127 m.m., large for the size of the plant.—*E.C.*

2047. Peziza diplocarpa. *Curr.* "Double fruited Peziza."

Cups rather flat, stipitate, externally vinous-brown, clothed (as well as the stem) with dense short hairs; margin slightly inflexed, fimbriate; dise waxy, sub-glaucous, greenish-olive; sporidia elliptical, nucleate; paraphyses filiform, apices clavate-acuminate, 2-4 septate.—*Curr. Linn. Trans.* xxiv. *p.* 153, *t.* 25, *f.* 30-33.

On the ground. Nov. Joyden's wood, Dartford.

Cups ⅛ in. wide, margin slightly inflexed and surrounded by a ring of hairs of a pale umber, forming a marked contrast in colour with the reddish brown outer hairs; dise waxy, somewhat glaucous, of a greenish olive colour; sporidia elliptical, with a nucleus at each extremity, usually slightly narrowed at each end, ·0076 m.m. (·0003 in.) long; paraphyses filiform, terminating in spore-like bodies, the latter 2-4 septate, acuminate at the apex, and tapering to the junction with the filament, varying much in length, from ·0008 to ·0018 in. Allied to *P. rufo-olivacea.*—*A. & S.*

2048. Peziza variecolor. *Fr.* "Various-coloured Peziza."

Sessile, hemispherical, orbicular, rather firm, floeculoso-villose; disc urceolate, white, becoming pallid.—*Fr. S.M.* ii. *p.* 100. *Eng. Fl.* v. *p.* 197. *P. albo-lutea. Pers. Ic. & Des. t.* 8, *f.* 4-5. *P. hydnoidea. Sow. t.* 178. *Tapesia variecolor. Fckl. Sym. Myc. p.* 302.

On rotten wood. [Mid. Carolina.]

Gregarious, sessile, but not adnate; when young or dry closed, granuliform, when moistened soon expanded; disc concave, of a peculiar pallid hue, margin often granulated with flocci.—*Fries.*

Sporidia oblong, ·007-·011 × ·002-·003 m.m.—*Nyl. Karst.*

2049. Peziza episphæria. *Mart.* "Parasitic Peziza."

Sessile, becoming plane, externally white, beset with long ciliato-pilose hairs; disc pale yellowish.—*Fr. S.M.* ii. *p.* 100. *Eng. Fl.* v. *p.* 197.

On *Hypoxylon multiforme*, &c.

2050. Peziza pineti. *Batsch.* "Fir-cone Peziza."

Sessile, adnate, nearly plane, firm, subvillose, whitish-brown; disc pallid white.—*Fr. S.M.* ii. *p.* 101. *Eng. Fl.* v. *p.* 197. *Batsch. f.* 140. *Fckl. exs. no.* 1167. *Pseudohelotium pineti. Fckl. Sym. Myc. p.* 298.

On fir cones. Autumn.

Sporidia minute, fusiform.—*Nyl.*
Sporidia oblong-fusiform, ·008-·014 × ·003 m.m.—*Karst.*

2051. Peziza papillaris. *Bull.* "Papillose Peziza."

Sessile, free, concave, villose, hairy, entirely milk-white; margin granulated.—*Fr. S.M.* ii. *p.* 102. *Eng. Fl.* v. *p.* 197. *Bull. t.* 467, *f.* 1. *Sow. t.* 177.

On dead wood.

Gregarions, thick set, not adnate, waxy, rather firm, scarce 1 line broad, regular, margin entire, denticulated, closed when dry, granuliform, persistent, so slightly tinged with yellow that it can scarcely be called straw-coloured.—*Fries.*
Sporidia fusiform, simple, ·01-·015 × ·0025 m.m.—*Nyl.*
Sporidia subfusiform, ·009-·015 × ·002-·003 m.m.—*Karst.*

2052. Peziza hyalina. *Pers.* "Hyaline Peziza."

Sessile, punctiform, subglobose, when moist pellucid, externally rather pilose.—*Fr. S.M.* ii. *p.* 102. *Eng. Fl.* v. *p.* 198. *Pseudohelotium hyalinum. Fckl. Sym. Myc. p.* 298.

On stumps of trees. Winter. [Mid. Carolina.]

Gregarious, extremely minute, very thin, soft, often irregular, white, at length turning yellowish in patches. When dry it resembles minute grains of white sand scattered over the bark.—*M. J. B.*
Sporidia oblong or fusiform-ellipsoid, ·005-·009 × ·002-·0025 m.m.—*Nyl.*
Sporidia straight or slightly curved, ·004-·009 × ·002-·0025 m.m.—*Karst.*

2053. Peziza sulphurea. *Pers.* "Sulphur Peziza."

Sessile, subglobose, strigoso-tomentose, sulphur-coloured; disc pallid.—*Fr. S.M.* ii. *p.* 104. *Eng. Fl.* v. *p.* 198. *Pers. M.E. p.* 250. *Fckl. exs. no.* 1196. *Berk. exs. no.* 156. *Grev. t.* 83. *P. hydnoidea. Purt. no.* 1049. *Trichopeziza sulphurea. Fckl. Sym. Myc. p.* 296.

On dead nettles, &c. Spring. [Mid. Carolina.]

Often brown when dry.
Sporidia fusiform, simple, or at length spuriously 1-3 septate, ·014-·024 × ·002-·0025 m.m.—*Nyl.*
Sporidia filiform-fusoid ·012-·024 × ·0015-·0025 m.m.—*Karst.*

2054. Peziza plano-umbilicata. *Grev.* "Umbilicate Peziza."

Small, sessile, gregarious, whole plant white, globoso-concave, at length quite plane, cileated with horizontal white hairs at the margin; hymenium gently umbilicated.—*Grev. Fl. Ed. p.* 420. *Eng. Fl.* v. *p.* 198.

On dead nettles.

Wholly white, remarkably plane, with a small dimple in the centre of the hymenium, which, in old age, assumes a yellowish tinge. The external surface is covered with white hairs, which form a beautiful ciliated margin, not in the least raised. The margin is so regular, that if there had been fewer cilia it might have been called pectinate.—*Grev.*

2055. Peziza villosa. *Pers.* "Villous Peziza."

Sessile, minute, persistent, globose, villous, white, mouth somewhat connivent.—*Fr. S.M.* ii. *p.* 104. *Eng. Fl.* v. *p.* 198. *Rabh. exs. no.* 225. *Schmidt. exs. no.* 48. *Fckl. exs. no.* 2286. *P. sessilis. Sow. t.* 389, *f.* 1. *Nees. f.* 283 *var. Trichopeziza villosa. Fckl. Sym. Myc. p.* 296.

On large herbaceous plants, Burdock, &c. Common. [United States.]

Open only in wet weather; cups ¼-½-a line broad, scattered or much crowded.—*Eng. Fl.*

2056. Peziza Grevillei. *Berk.* "Greville's Peziza."

Sessile, gregarious, very minute, cups farinoso-tomentose (sub-hirsute), pale-umber.—*Eng. Fl.* v. *p.* 198. *P. nidulus. Grev. Fl. Ed. p.* 420. *Johnst. Fl. Berw.* ii. *p.* 149.

On dead *Umbelliferæ*.

2057. Peziza Berkeleii. *Blox.* "Berkeley's Peziza."

Gregarious, sessile, cups hemispherical, furfuraceo-floccose, almost pruinose; hymenium concave, tawny; asci clavate; sporidia oblong, subfusiform or cymbiform.—*Ann. N.H. no.* 770.

On dead stems of *Umbelliferæ*.

Very minute, often crowded, hemispherical, with the margin at first strongly inflected, clothed with furfuraceous yellow flocci. In young specimens the orifice is distinctly marked, with radiating lines. Sporidia (·0003-·0004 in.) ·0076-·01 m.m. long. Under the lens the coat consists of very short flocci, intermixed with minute hyaline amorphous scales.—*B. & Br.*

2058. Peziza aspidiicola. *B. & Br.* "Fern Peziza."

White, rather buff when dry; stem very short; cups concave, subhemispherical, externally furfuraceo-floccose; asci very short and slender; sporidia oblong, subelavate.—*Ann. N.H. no.* 771.

On dead stems of *Aspidium filix-mas.* Nov.

Very minute, gregarious; stem ex remely short, gradually passing into the sub-hemispherical cup, which is clothed externally with minute pellucid scales, mixed with a few obscure hyaline flocci. Sporidia (·0002 in.) ·005 m.m. long.—*B. & Br.*

2059. Peziza albo-testacea. *Desm.* "Brick-red Peziza."

Erumpent, sessile, small, scattered, floceulose, white, and brick-red colour, hemispherical, closed when dry; disc open when moist, flesh-coloured; asci small.—*Desm. Ann. Sc. Nat.* xix. (1843), *p.* 368. *Desm. exs. no.* 1415. *Ann. N.H. no.* 560.

On dead stems of grass. July.

Tho exterior is of a brick-red colour, the hairs with which it is covered being white at their tips.

2060. Peziza apala. *B. & Br.* "Pale rush Peziza."

Minute, scattered or crowded, cups with the stem obconical, externally furfuraceo-villous, fawn-coloured; hymenium plane, darker; asci clavate; sporidia elongated, filiform, flexuous, almost as long as the asci.—*Ann. N.H. no.* 561. *Cooke exs. no.* 287. *Rabh. F.E. no.* 25.

On dead rushes. Feb.

Externally resembling *P. diminuta.* Rob. *(Desm. exs. no.* 1538*)*, but more shaggy, of a less vinous tint, and with a plano, not concave hymenium. The sporidia are filiform, and not merely oblong; the hairs, too, are obtuse. —*B. & Br.*

2061. Peziza clavariarum. *Desm.* "Clavaria Peziza."

Sessile, black, very minute, scattered, globose, externally bristling with long setæ; asci elavate; sporidia ovoid.—*Desm. Ann. Sc. Nat. ser.* ii. *vol.* 8, *t.* 2, *f.* 1. *B. & Br. Ann. N.H. no.* 563. *Peziza nigra, Sow. t.* 307.

On decayed *Clavaria.* Autumn.

The cups are globose and black, so as, at a hasty glance, liable to be mistaken for a hispid *Sphæria.*

2062. Peziza straminum. *B. & Br.* "Grass Peziza."

Cups hemispherical, sessile, concave; margin incurved, ex-

ternally pale farinaceous, internally pinkish yellow.—*B. & Br. Ann. N.H. no.* 571.

On dead sheaths of wheat and grasses.

Minute, not exceeding ½ line diameter; cups hemispherical, concave, sessile, or at length expanded; margin incurved, externally densely farinaceous, pale, internally of a pinkish yellow, or flesh colour.—*B. & Br.*

2063. Peziza vectis. *B. & Br.* "Centaury Peziza."

Minute, subglobose, somewhat depressed, dark-brown, rough with short brown hairs; disc concave, pale; sporidia between filiform and fusiform.—*Ann. Nat. Hist. no.* 957.

On dead stems of *Centaurea nigra*.

Sporidia (·0012 in.) ·003 m.m. long.

2064. Peziza ilicincola. *B. & Br.* "Holly Peziza."

Fasciculate; cups furfuraceous, externally dirty white, within cinereous, tinged with rose; asci clavate; sporidia at first uniseriate, globose, with a large globose nucleus.—*Ann. N.H. no.* 958, *t.* xvi. *fig.* 17.

On holly. Nov.

Sporidia (·00025 in.) ·0065 m.m. diameter.

Sec. 3. *Tapesia*—crowded, or seated on a tomentose subiculum.

2065. Peziza aurelia. *Pers.* "Woolly-yellow Peziza."

Sessile, scattered, sub-ventricose, golden-yellow; subiculum thin, whitish.—*Fr. S.M.* ii. *p.* 107. *Pers. M.E. p.* 273. *Eng. Fl.* v. *p.* 199. *Rav. exs.* v. *no.* 41. *Moug. exs. no.* 783. *Lib. exs. no.* 127. *Fckl. exs. no.* 1191. *P. Wauchii, Grev. t.* 139. *Arachnopeziza aurelia, Fckl. Sym. Myc. p.* 303.

On dead leaves, &c. Rare. [Low. Carolina.]

Cup 1-2 lines broad, woolly; subiculum radiating; sporidia oblong, at length 1-3 septate, ·014-·021 × ·003-·004 m.m.—*Nyl.*

Peziza anomala, Eng. Fl. v. p. 199. See *Solenia ochracea*.

2066. Peziza domestica. *Sow.* "Plaister Peziza."

Sessile, gregarious, obovate, strigose, salmon-coloured; subiculum thin, whitish.—*Fr. S.M.* ii. *p.* 107. *Sow. t.* 351. *Eng. Fl.* v. *p.* 199.

On whitewashed walls.

It first clothes the places that have been wetted with a fine cottony or membranaceous film, nearly as white as the plaister, which is in a short time partly covered with salmon-coloured knobs. These at length form a kind of upright *Peziza*, externally villous.—*Sowerby*.

2067. Peziza Piggotii. *B. & Br.* "Piggot's Plaster Peziza."

Mycelium white, downy; cups nearly hemispherical, or cyathiform, slightly concave; hymenium pale brick-red; asci cylindrical; paraphyses linear; sporidia elliptic, with a single, very distinct nucleus, in the centre of which is a bright point.—*Ann. N.H. no.* 769.

On plaster ceilings.

Mycelium white, downy, but not spreading very widely, running up the base of the hemispherical or cyathiform cups, which are about 2 lines broad; margin generally acute; sporidia (·0005 in.) ·012 m.m. long, by (·0003 in.) ·0076 m.m. wide.—*B. & Br.*

2068. Peziza cæsia. *Pers.* "Blue-eyed Peziza."

Sessile, becoming plane, villous, whitish, base ending in a subiculum of long interwoven hairs; disc subgelatinous, bluish-grey.—*Fr. S.M.* ii. *p.* 108. *Pers. Syn. p.* 657. *Ic. & Des. t.* 7, *f.* 1. *Nees. f.* 272. *Sturm.* iii. *t.* 31. *Tapesia cæsia, Fckl. Sym. Myc. p.* 301.

On chips. Appin. [Low. Carolina.]

Also found in England by Mr. Baxter.—*M. J. B.*
Sporidia cylindrical, curved, hyaline.—*Fckl.*

2069. Peziza Chavetiæ. *Lib.* "Dark-eyed Peziza."

Gregarious, sessile; cups minute, membranaceous, hemispherical, concave, tomentose, white, with long hairs at the base, interwoven with the web-like subiculum, of the same colour; disc sub-tremellose, blackish-brown; sporidia globose.—*Libert. exs. no.* 26. *Tapesia Chavetiæ, Fckl. Sym. Myc. p.* 301.

On chips.

This resembles *P. cæsia*, but is known at once by the yellowish or tawny tint which it assumes in drying.—*B. & Br.*
It is doubtful whether the two may not be the same species.—*M.C.C.*

2070. Peziza eriobasis. *Berk.* "Cottony Peziza."

Gregarious, but generally distinct; cups orbicular, tomentose, fixed to little, round, snow-white, cottony spots, which are sometimes confluent; when fresh white, when dry the disc has a yellowish tinge; asci slightly clavate, or obtusely lanceolate; sporidia oblong.—*Ann. N.H. no.* 312.

On smooth inner surface of bark.

Differs from *P. cæsia* and *P. chavetiæ* in its larger cups, pale disc, and several other points. The cups are sometimes extremely thin, crowded, and pressed very close to the matrix, but this is not usually the case.—*B. & Br.*

2071. Peziza Bloxami. *B. & Br.* "Bloxam's Peziza."

Densely crowded, seated on a white mycelium; cups concave, pale fawn colour, externally farinaceous; disc of the same colour.—*Ann. N.H. no.* 566.

On fallen branches. Twycross. [S. Carolina.]

Very densely crowded so as nearly to conceal the white cottony mycelium, in which the cups are half immersed. At first globose, white, and densely pruinose, acquiring as they expand a pale fawn colour, and gradually becoming nearly smooth. In dry specimens bundles of the cups are collected in little patches, so as to expose the white mycelium between them.—*B. & Br.*

2072. Peziza mutabilis. *B. & Br.* "Changeable Peziza."

Minute, at first presenting little brown villous specks, from which the cups burst; cups scattered, brown externally, hemispherical, villous, becoming smooth and dirty-white; sporidia minute, elongated, somewhat curved, containing two nuclei, endochrome sometimes restricted to either extremity.—*Ann. N.H. no.* 564.

On leaves of *Aira cæspitosa*. Feb.

When old it bears some resemblance to pale forms of *P. atrata* or *P. palustris*.—*M. J. B.*

2073. Peziza rosæ. *Pers.* "Rose-stem Peziza."

Sessile, sub-coriaceous, concave, sub-tomentose, bright-brown, as well as the tomentose subiculum.—*Pers. M.E. p.* 278. *Fr. S.M.* ii. *p.* 109. *Eng. Fl.* v. *p.* 200. *Tode.* i. *f.* 41. *Mag. Zool. & Bot. no.* 10. *Berk. exs. no.* 157, 286, *variety*. *Fckl. exs. no.* 1874. *Rabh. F.E. no.* 354. *Tapesia Rosæ, Fckl. Sym. Myc.* 301.

On dry branches of *Rosa canina*. Oct.

[Low. & Mid. Carolina.]

Forming small roundish patches on the branches, sometimes surrounding them.—*Eng. Fl.*

The variety published by the Rev. M. J. Berkeley (no. 286), occurred near Liverpool, on sycamore (*Ann. N.H. no.* 313).

Sporidia elongated, ·007-·01 × ·002-·0025 m.m.—*Karst.*

2074. Peziza fusca. *Pers.* "Crowded Brown Peziza."

Sessile; cups concave, brown (smooth towards the margin), at length plane, cinereous, fixed beneath to a broad, tomentose,

dark-brown subiculum.—*Pers. M.E. p.* 273. *Fr. S.M.* ii. *p.* 109. *Grev. t.* 192. *Fckl. exs. no.* 1593. *Tapesia fusca, Fckl. Sym. Myc. p.* 302. *Pez. vulgaris, Fckl. exs. no.* 1173.

On fallen branches. Spring. [Mid. Carolina.]

Spreading in patches two inches or more wide.
Sporidia oblong-fusiform or fusiform, simple, ·008-·016 × ·002-·0025 m.m. —*Nyl. Karst.*

2075. Peziza Johnstoni. *Berk.* "Johnston's Peziza."

Sessile; cups globose, or sub-turbinate, at length open and rufous, with a satiny lustre, attached beneath to a broad black-brown, grumous subiculum.—*Ann. N.H. no.* 313.

On fallen branches. Berwick.

Forming a uniform stratum on decayed sticks; cups half a line broad, at first brown and pulverulent, at length rufous, rather thin, with a satiny lustre, subturbinate, with the margin permanently inflected, at first quite closed; subiculum granulated, grumous, obscurely floccose.—*M. J. B.*

2076. Peziza sanguinea. *Pers.* "Blood-red Peziza."

Cups concave, smooth, becoming blackish; base surrounded by a short blood-red tomentum.—*Fr. S.M.* ii. *p.* 110. *Pers. M.E. p.* 273. *Nees. f.* 271. *Mag. Zool. & Bot. no.* 11. *Fckl. exs. no.* 1187. *Tapesia sanguinea, Fckl. Sym. Myc. p.* 303.

On fir. Nov. Beeston, Notts. [Low. & Mid. Carolina.]

Sporidia ovoid-oblong or fusiform, simple, ·006-·01 × ·0025-·003 m.m.— *Nyl. Karst.*

Sect. 4. *Fibrina*—externally fibroso-striate, with adpressed hairs.

2077. Peziza rudis. *Berk.* "Rustic Peziza."

Fasciculate, turbinato-stipitate; hymenium plane, here and there depressed, rugose, yellow-brown, somewhat vinous, externally finely fibrilloso-striate; stem elongated, lacunose or striate. —*Berk. in Proc. N.H. Soc. Berw. p.* 190. *Ann. N.H. no.* 574. *t.* 6, *f.* 13.

On shallow gravel and peat. June.

2078. Peziza bolaris. *Batsch.* "Red-ochre Peziza."

Infundibuliform; cup hemispherical, fibrillose-veined, sub-ochraceous; disc brown; stem short, blackish.—*Fr. S.M.* ii. *p.* 112. *Batsch. f.* 155. *Eng. Fl.* v. *p.* 200. *Ciboria bolaris, Fckl. Sym. Myc. p.* 311.

On willow. Autumn. Appin. [Mid. Carolina.]

Stem very variable in length in the same group, 1-2 lines or more high; cup 1-2 lines broad, when young villous, soon, however, losing its villosity. —*Eng. Fl.*

Sporidia oblong-ovate, hyaline, distinctly scrobiculate.—*Fuckl.*

2079. Peziza siparia. *B. & Br.* "Curtain Peziza."

Cups sub-sessile, externally furfuraceous, ochraceous; hymenium becoming brownish; sporidia linear-oblong, curved.—*Ann. N.H. no.* 772.

On decorticated elm branches. Oct.

Accompanied by a floccose stratum, which is, however, possibly not constant. Cup at first sub-globose, then cyathiform, scarcely stipitate, but fixed by a broad base, with the margin free, externally ochraceous, furfuraceous; hymenium ochraceous, at length brownish; sporidia (·00045 in.) ·012 m.m. long often with a nucleus at either extremity. At first with some resemblance to *P. firma.—B. & Br.*

2080. Peziza ledi. *A. & S.* "Arbutus Peziza."

Sessile, globose or hemispherical, externally rugose, brownish-black, mouth especially shining, greenish, covered with a compact powder; disc dingy.—*Fr. S.M.* ii. *p.* 114. *A. & S. t.* 10, *f.* 7. *Nees. f.* 264. *Ann. N.H. no.* 160.

On *Arbutus Uva-Ursi.* Sept. Glencoe.

2081. Peziza leptospora. *B. & Br.* "Thread-spored Peziza."

Cups at first hemispherical, then expanded, externally lurid from the scattered, black, adpressed flocci, internally whitish; sporidia filiform.—*B. & Br. Ann. N.H.* (1866), *no.* 1166, *t.* 4, *f.* 30.

On decayed wood. Jedburgh.

About half a line across; at first perfectly globose, often collapsed in the centre, but gradually opening and exposing the soft, pallid, sometimes straw-coloured hymenium; asci oblong; sporidia very long and slender, filiform, flexuous, with a row of globular nuclei, at length repeatedly septate.—*B. & Br.*

Series 3. Phialea, Fr.

Veil none; cups waxy or membranaceous, quite smooth (or very rarely mealy or sub-tomentose), soon open; subiculum none.—*Berk. Outl. p.* 370.

Stipitate, membranaceous . . .	*Hymenoscypha.*
Sessile, waxy, soft	*Mollisia.*
Indurated, persistent	*Durella.*

Sect. 1. *Hymenoscypha.* Stipitate, submembranaceous.

2082. Peziza firma. *Pers.* "Ochre-brown Peziza."

Cup infundibuliform, then dilated, repand, pale brown; stem long, attenuated downwards, becoming blackish; sporidia subelliptic, pointed at either end.—*Fr. S.M.* ii. *p.* 117. *Pers. M.E. p.* 277. *Eng. Fl.* v. *p.* 200. *Gonn. & Rabh.* iii. *t.* 6, *f.* 3. *Lib. exs. no.* 228. *P. ochroleuca. Bolt. t.* 105, *f.* 1. *Sow. t.* 115. *Ciboria firma. Fckl. Sym. Myc. p.* 312.

On sticks. Autumn. Common. [Mid. Carolina.]

Gregarious, leathery when fresh, hard when dry; cup ¼-½ in. broad; stem ¼-2 in. high. Varying in colour from whitish ochre to brown; sometimes on decaying acorns, covered with the soil.

Sporidia (·0007 in.) ·0177 m.m. long.

Sporidia ellipsoid, simple (sometimes spuriously septate) ·015-·021 × ·005-·009 m.m.—*Nyl. Karst.*

Sporidia ·004-·005 m.m. broad, and 4-5 times as long.—*G. & R.*

2083. Peziza Curreiana. *Tul.* "Sclerotium Peziza."

Cups brown, very smooth, elastic, at first subhemispherical, then infundibuliform; margin entire; stem slender, flexuous, equal, smooth; asci cylindrical, obtuse; sporidia inconspicuous, narrow, subcylindrical, sometimes slightly curved, and colourless. —*Tul. Carp.* i. *p.* 105. *Curr. Linn. Trans.* xxiv. *p.* 495, *t.* 51, *f.* 17, 18. *Linn. Journ.* i. *p.* 147. *Peziza Curreii. Berk. Outl. p.* 370.

On dead *Juncus*, developed from *Sclerotium roseum.*—*Ann. N.H. no.* 163.

Sporidia (·0004-·0005 in.) ·01-·012 m.m. long.

The *Sclerotium* is found in the pith of rushes, from which Mr. Currey found the *Peziza* freely developed. (See *Journ. Linn. Soc.*, *vol.* 1, *p.* 147.)

"The cup was of a bright brown colour, varying somewhat in shape; in most it was hemispherical, in some infundibuliform; in one the edge of the cup was erect, extending beyond the equator of the hemisphere, in others the edge of the cup was recurved and sinuous. The number growing from one *Sclerotium* varied from 2 to 13, and the greater the number the less was the size of the individual. The diameter of the largest cup was rather more than one half, and of the smallest about 1-16th of an inch. The stalk was well developed, being generally about the length of the diameter of the cup of a darker colour, and tapering somewhat from above downwards. In one specimen the base of the stem at its point of junction with the *Sclerotium* was thickly covered with hairs."—*F. Currey.*

2084. Peziza ciborioides. *Fr.* "Oak-leaf Peziza."

Cup infundibuliform, even, dark rufescent; stem very long, thread-like, bright brown.—*Fr. S.M.* ii. *p.* 117. *Ann. N.H. no.* 158. *Mont. Ann. des Sc. Nat.*

On oak leaves. [Low. Carolina.]

Sporidia ellipsoid, simple, ·009-·012 × ·004-·006 m.m.—*Nyl.*

2085. Peziza echinophila. *Bull.* "Chestnut Peziza."

Cup infundibuliform, then plane, pale cinnamon; stem long, paler, at first subtomentose.—*Fr. S.M.* ii. *p.* 118. *Bull. t.* 500, *f.* 1. *Ann. N.H. no.* 567.

On fallen involucres of Chestnut.

2086. Peziza coronata. *Bull.* "Crowned Peziza."

Stipitate, pallid, cup concave, margin crowned, with setaceous teeth.—*Fr. S.M.* ii. *p.* 120. *Bull. t.* 416, *f.* 4. *Nees. f.* 293. *Fl. Dan. t.* 1380, *f.* 1, *t.* 1016, *f.* 1. *Fckl. exs. no.* 1183.

On stalks of plants. [Mid. Carolina.]

Sporidia fusiform, ·014-·02 × ·0035-·004 m.m.—*Nyl. Karst.*
Sporidia oblong-fusiform, curved, hyaline.—*Fckl.*

2087. Peziza inflexa. *Bolt.* "Triangular toothed Peziza."

Stipitate, whitish, cup subhemispherical, margin surrounded by triangular teeth.—*Fr. S.M.* ii. *p.* 120. *Bolt. t.* 106, *f.* 2. *Sow. t.* 306. *Eng. Fl.* v. *p.* 201.

On stems of nettles, &c. Autumn.

2088. Peziza Persoonii. *Moog.* "Mare's-tail Peziza."

Cup urceolate, orange; margin prominent, membranaceous, whitish; stem cylindrical, rosy.—*Fr. S.M.* ii. *p.* 121. *Eng. Fl.* v. *p.* 201. *Pers. M.E. t.* 12, *f.* 1-4. *Grev. t.* 162. *Eng. Fl.* v. *p.* 201. *Lycoperdon equiseti. Hoffm. Cr. t.* 5, *f.* 1. *Fckl. exs. no.* 1184. *Gonn. & Rabh.* iii. *t.* 5, *f.* 5. *Lib. exs. no.* 329. *Rabh. F.E. no.* 123. *Stamnaria Persoonii. Fckl. Sym. Myc. p.* 309.

On *Equisetum*, in bogs and moist places. Rare.

Sporidia cylindrical, pseudo-septate, ·005 m.m. broad, and about 3 times as long.—*G. & R.*

2089. Peziza striata. *Fr.* "Striate Peziza."

Cup turbinate, striate, brownish; margin connivent, subpruinose; disc urceolate, pallid, as well as the short stem.—*Fr. S.M.* ii. *p.* 122. *Ann. N.H. no.* 568. *P. urticæ. Pers. M.E.* i. *p.* 286. *Nyl. Pez. p.* 39. *Fckl. exs. no.* 1180.

On dead stems of herbaceous plants.

Sporidia oblong-fusiform, simple, ·007-·008 × ·002 m.m.—*Nyl.*

2090. Peziza cacaliæ. *Fr.* "Stock Peziza."

Turbinate, even, brownish, mouth subconnivent, paler; stem rather long, slightly thickened.—*Fr. S.M.* ii. *p.* 122. *Ann. N.H. no.* 569. *Fckl. exs. no.* 2283.

On seed vessels of common stock. Guernsey.

Sporidia narrowly cylindrical, somewhat curved.—*Fckl.*

2091. Peziza nitidula. *B. & Br.* "Glistening Peziza."

Rather firm, minute, pale watery tan; stem short, equal; cup subhemispherical, irregular, farinaceous, glistening; asci filiform; spores minute, cymbiform; endochrome sometimes retracted to either extremity.—*Ann. N.H. no.* 570.

On dead leaves of *Aira cæspitosa.* Jan.

Scattered; cup slightly concave, at first subhemispherical, then nearly plane, often irregular, covered with glistening mealy particles. Allied to the preceding, but distinguished by its uniformly mealy surface, irregular shape, and depressed, not clavate, cup.—*B & Br.*

2092. Peziza cyathoidea. *Bull.* "Goblet Peziza."

Thin, whitish, pallid; cup globose, or cyathiform, then expanded, quite entire; stem filiform, rather long.—*Fr. S.M.* ii. *p.* 124. *Eng. Fl.* v. *p.* 202. *Bull. t.* 316, *f.* 2. *Batsch. f.* 149? 151. *Nees. f.* 294. *Holms.* ii. *t.* 11. *Berk. exs. no.* 158. *Fckl. exs. no.* 1179. *P. pedicellata. Sow. t.* 369, *f.* 4.

On dead herbaceous stems. Aug.—April. Common.
[Mid. & Up. Carolina.]

Sporidia fusiform, simple, ·005-·009 × ·001-·002 m.m.—*Nyl.*
Sporidia fusoid or filiform, ·005-·01 × ·001-·002 m.m.—*Karst.*

2093. Peziza caucus. *Reb.* "Catkin Peziza."

Pallid brownish; cup vasculiform; margin erect; stem short, rather thickened, sub-flexuose.—*Fr. S.M.* ii. *p.* 126. *Reb. t.* 4, *f.* 17. *Fl. Dan. t.* 2084, *f.* 2. *Pers. M.E.* iii. *t.* 30, *f.* 2. *Kromb. t.* 5, *f.* 37-39. *Rabh. exs. no.* 1019. *P. sclerotiorum, Lib. Ciboria caucus, Fckl. Sym. Myc. p.* 311.

On fallen catkins.

2094. Peziza imberbis. *Bull.* "Beardless Peziza."

Fleshy or waxy, smooth, white; cups plano-concave, subflexuous; stem papillæform; sporidia linear, slightly curved.—*Fr. S.M.* ii. *p.* 136. *Batsch. f.* 56. *Bull. t.* 467, *f.* 2. *B. & Br. Ann.*

N.H. (1866), *no.* 1167. *Helotium imberbe, Berk. Outl. p.* xvii. *Ann. N.H. no.* 963. *Fckl. exs. no.* 1148.

On willow. Mossburnford.

Sporidia (·0001 in.) ·01 m.m. long.

2095. Peziza minutissima. *Batsch.* "Very minute Peziza."

Whitish; cups obovate, substipitate; margin incurved; hymenium concave; asci clavate, elongated; sporidia fusiform, 4-septate, joints rather swollen, paraphyses filiform.—*B. & Br. Ann. N.H.* 1865, *no.* 1071, *t.* 15, *f.* 21. *Batsch. f.* 143. *P. Helminthosporii, Blox. MSS.*

On *Helminthosporia.* Jan. Twyeross. Batheaston.

Pallid; cups clavate, substipitate; margin incurved; sporidia (·0014 in.) ·035 m.m. long, quadriseptate. Interesting from the marked character afforded by the sporidia.—*M.J.B.*

Sect. 2. *Mollisia*—sessile, waxy, soft.

2096. Peziza clavus. *A. & S.* "Swamp Peziza."

Fleshy or gelatinous, somewhat firm, nearly ob-conic, purplish; disc convexo-plane; pileiform; stem thick; sporidia regularly oblong, elliptic, with a sporidiolum at either extremity.—*Fr. S.M.* ii. *p.* 137. *A. & S. p.* 306, *t.* 11, *f.* 5. *Ann. N.H. no.* 575.

On leaves, &c., in swamps. March—April.

2097. Peziza vinosa. *A. & S.* "Vinous Peziza."

Minute, sessile, sub-tremellose, nearly plane, smooth, quite entire, fleshy-red.—*Fr. S.M.* ii. *p.* 141. *A. & S. p.* 308. *Eng. Fl.* v. *p.* 205. *Rav. exs.* iv. *no.* 19. *Calloria vinosa, Fckl. Sym. Myc. p.* 283.

On fallen branches. Autumn—Spring.
[Low. & Mid. Carolina.]

When dry it is much more concave, and appears to be held down by gelatinous filaments, which vanish as the plant swells on the application of moisture, and assumes a much paler tint.—*Eng. Fl.*

Sporidia acicular-fusiform, simple, ·011-·016 × ·001-·0015 m.m.—*Nyl. Karst.*

2098. Peziza auricolor. *Blox.* "Golden Peziza."

Soft, subgelatinous, orange; cup marginate, springing from a stratum of delicate, hyaline filaments; sporidia narrow.—*B. & Br. Ann. N.H.* 1865, *no.* 1068.

On the under side of a fallen tree. Gopsal.

Cups with a broad raised margin, springing from delicate, radiating, hyaline, interwoven hairs. The evident affinity of this species to *P. vinosa*, induces us to place it in *Mollisia* rather than *Tapesia*.—*M.J.B.*

2099. Peziza atrovirens. *Pers.* "Dark-green Peziza."

Sessile, sub-tremellose, when young globose, green, when adult hemispherical; disc plane, with a flesh-coloured tinge.—*Fr. S.M.* ii. *p.* 141. *Pers. Syn. p.* 635. *Eng. Fl.* v. *p.* 205. *Grev. Fl. ed. p.* 425. *Coryne virescens, Tul. Carp.* iii. *p.* 193, *t.* xviii. *f.* 12-15.

On decaying wood. [Mid. Carolina.]

2100. Peziza cinerea. *Batsch.* "Cinereous Peziza."

Sessile, soft, minute, scutellate, cinereous; margin quite entire, whitish.—*Fr. S.M.* ii. *p.* 142. *Batsch. f.* 137, 219. *Sow. t.* 64. *Nees. f.* 269. *Bull. t.* 416, *f.* 1. *Fl. Dan. t.* 1490, *f.* 2. *Cooke exs. no.* 390. *Eng. Fl.* v. *p.* 205. *Niptera cinerea, Fckl. Sym. Myc. p.* 292.

On decaying wood, &c. Autumn—Spring. Common. [Mid. Carolina.]

Crowded, 1-2 lines broad, either equal or lobed, and waved at the margin. Hymenium pale or grey, watery, paler towards the circumference, substance soft and sometimes almost gelatinous.—*Grev.*

Sporidia oblong, rarely slightly curved, simple, ·006-·011 × ·0015-·0025 m.m.—*Nyl.*

Sporidia straight or curved, ·006-·012 × ·001-·0025 m.m.—*Karst.*

2101. Peziza lacustris. *Fr.* "Swamp Peziza."

Sessile, becoming plane, orbicular, soft, waxy, plano-convex, dingy blackish; sporidia colourless, crowded at the apex of the asci, pellucid, elliptical, rounded at both ends, often slightly curved, sometimes with an indistinct minute nucleus at each extremity.—*Fr. S.M.* ii. *p.* 143. *Fr. exs. no.* 173. *Curr. Linn. Trans. Rabh. F.E. no.* 231. *Niptera lacustris, Fckl. Sym. Myc. p.* 292.

On submerged stems of *Alisma plantago*. Near Blackheath.

Sporidia (·0005-·0006 in.) ·012-·015 m.m. in length; paraphyses filiform or subclavate.—*F.C.*

Fries "Summa Veg. Scan." makes this the type of a new genus, *Niptera*, which he places near *Ascobolus*.

When young adnate, plano-convex, ½ line broad, even, smooth, black, then dilated, plane, free beneath, except the central point of adhesion, externally sooty-black, quite black when dry; margin at first connivent, then open, inflexed, entire; disc turgid, soft, when moist dingy, when dry black. —*Fries.*

Sporidia oblong, 1-3 septate, ·022-·03 × ·006-·009 m.m—*Nyl.*

2102. Peziza Browniana. *Blox.* "Brown's Peziza."

Cup hemispherical, sessile, horny; margin paler, ciliate; disc pallid; sporidia shortly fusiform, hyaline.—*B. & Br. Ann. N.H.* (1865), *no.* 1072.

On dead stems of *Epilobium hirsutum.* Twyeross.

Allied to *P. lacustris.* The sporidia are (·00045 in.) ·011 m.m. long, the colour is paler, and when perfect the ciliated margin, which consists of delicate, flexuous, more or less interwoven hairs, is characteristic.—*M. J. B.*

2103. Peziza Chailletii. *Pers.* "Chaillet's Peziza."

Sessile; cups urceolate, rather fleshy, ash coloured; margin toothed, blackish.—*Fr. S.M.* ii. *p.* 144. *Pers. M.E. p.* 288. *Fckl. exs. no.* 1868. *Pyrenopeziza Chailletii, Fckl. Sym. Myc. p.* 294. *Phac. patella, Eng. Fl.* v. *p.* 292 (*partly*).

On dead herbaceous stems.

Asci oblong-clavate; sporidia biseriate, oblong, a little curved, with two nuclei.—*Fckl.*

2104. Peziza hepatica. *Batsch.* "Liver-color Peziza."

Sessile, concave, vinous-brown, externally granulated; margin encircled with triangular teeth; paraphyses septate, inflated at the joints; sporidia elliptic, even.—*B. & Br. Ann. N.H.* 1865, *no.* 1069. *t.* 15, *f.* 19. *Batsch. f.* 138. *Rabh. F.E. ex. no.* 612.

On the ground beneath rabbit's dung, more rarely on the dung itself, or surrounding moss and twigs. Jan. Wiltshire.

Gregarious; when young subglobose and closed, then concave and flattened, 1-2 lines broad, of a watery consistence; paraphyses septate, the joints more or less swollen or inflated; asci linear; sporidia elliptic, uniseriate, hyaline, even (·001 × ·0005 in.) ·025 × ·012 m.m.

2105. Peziza sphærioides. *Pers.* "Sphæroid Peziza."

Sessile, clustered, blackish, concave; margin contracted, externally rugose, whitish, pulverulent.—*Pers. M.E.* ii. *p.* 328. *Desm. exs. no.* 174. *Ann. N.H. no.* 577. *Roth. Ust. Ann.* i. *p.* 2, *t.* i. *f.* 6. *Nees. f.* 281.

On stems of *Lychnis dioica.* Common.

2106. Peziza axillaris. *Nees.* "Moss-stem Peziza."

Sessile, vasculiform, orange, base paler; margin obtuse.—*Fr. S.M.* ii. *p.* 145. *Nees. f.* 267. *Eng. Fl.* v. *p.* 205. *Fckl. exs. no.* 1176. *Leucoloma axillaris, Fckl. Sym. Myc. p.* 318.

On *Splachnum mnioides.* Aug. Rare.

Plant ¼-¾ line high; cup at first ovato, closed, then urceolate, of a soft waxy consistence; margin quite entire, when dry scarlet, persistent.—*Klotsch.*
Fries says that when dry it acquires a brownish tinge, and is sub-evanescent.

2107. Peziza xanthostigma. *Fr.* "Golden dot Peziza."

Sessile, minute, submembranaceous, smooth, concave, orbicular, golden yellow.—*Fr. S.M.* ii. *p.* 146. *Eng. Fl.* v. *p.* 206.

On rotting fir wood.

2108. Peziza leucostigma. *Fr.* "White dot Peziza."

Sessile, minute, submembranaceous, smooth, becoming plane, white; disc subcinereous.—*Fr. S.M.* ii. *p.* 146. *Eng. Fl.* v. *p.* 206.

On soft rotten wood.

Very minute, dirty yellow when dry; scattered, at first appearing under the form of an urceolate dot, in which state it appears under a powerful lens, most minutely rugulose, and fixed down by a few delicate white threads, then quite flat, with a narrow border, white with the slightest possible cinereous tinge in the centre; in decay dirty yellow, or even grey. Not more than half line broad.—*Eng. Fl.*
Sporidia ellipsoid, simple, ·003 × ·0015 m.m.—*Nyl.*
Sporidia ellipsoid or oblong, ·003-·004 × ·001-·0015 m.m.—*Karst.*

2109. Peziza ulmariæ. *Lasch.* "Meadow-sweet Peziza."

Scattered, very minute, cups subglobose, at length open, umber, with short downy hairs; disc honey-coloured; asci small, cylindrical; sporidia cylindrical, minute.—*Klotch. exs. no.* 1723. *Cooke exs. no.* 399. *Peziza spirææ. Kirch. Lotos.* (1856), *p.* 246?

On stems of *Spiræa ulmaria.*

Forming very minute points on the dead stems, scarcely visible to the naked eye, usually subglobose and nearly closed. It seems to be much more minute that Kirchner's *P. spirææ*, quoted above.

2110. Peziza vulgaris. *Fr.* "Common Peziza."

Sessile, subcæspitose, membranaceous, soft, smooth, dirty-white, becoming pallid.—*Fr. S.M.* ii. *p.* 146. *Eng. Fl.* v. *p.* 206. *Rav. exs.* iv. *no.* 18.

var. β. **diaphana.** Scattered, urceolate, then plane, whitish, hyaline.—*Sow. t.* 389, *f.* 7.

On fallen branches. [United States.]

Sporidia cylindrical-oblong, ·005-·007 × ·0015 m.m.—*Nyl.*
Sporidia straight or curved, ·005-·008 × ·0015 m m.—*Karst.*

2111. Peziza erumpens. *Grev.* "Petiole Peziza."

Minute, of a waxy-watery consistence, smooth, sessile, grey, erumpent.—*Grev. t.* 99. *Eng. Fl.* v. *p.* 206. *Gonn. & Rabh.* iii. *t.* 5, *f.* 6. *Desm. exs.* ii. *no.* 1345.

On sycamore petioles. Autumn.

Resembling to the naked eye an *Hysterium* when dry, in moist weather distending the small slit in the back of the petiole, till it attains its round form, when the margin projects over the edge of the fissure.—*Grev.*
Sporidia ·003 ·005 m.m. broad, and 2-3 times as long.—*G. & R.*

2112. Peziza atrata. *Pers.* "Small Black Peziza."

Sessile, subglobose, smooth, blackish, mouth connivent, whitish.—*Fr. S.M.* ii. *p.* 148. *Eng. Fl.* v. *p.* 207. *Nees. f.* 266. *Fckl. exs. no.* 1869. *Cooke exs. no.* 284. *Rav. exs.* vi. *no.* 82. *Berk. exs. no.* 68. *Pyrenopeziza atrata. p.* 294.

On dead herbaceous stems, &c. [United States.]

Scattered or gregarious, 1 line or more broad, blackish, with a livid, sub-olivaceous tinge, the border nearly white, globose at first, but when crowded often irregular, rugulose under a lens.—*Eng. Fl.*
Sporidia narrow-oblong, simple, ·007 × ·0015 m.m.—*Nyl.*
Sporidia acicular, ·005-·008 × ·0015 m.m.—*Karst.*

2113. Peziza cornea. *B. & Br.* "Horn-coloured Peziza."

Minute, gregarious, sessile, at first globose, yellow horn coloured, at length shortly obconic or turbinate, orange-brown; sporidia fusiform, slightly curved.—*Ann. N.H. no* 578.

On dead stalks of *Carex paniculata.* March.

Sometimes slightly hollow, but more generally flat and granulated, margin rather jagged. An extremely pretty, though minute species.—*B. & Br.*

2114. Peziza fusarioides. *Berk.* "Nettle Peziza."

Hemispherico-depressed, soft, orange-red, stroma not distinct; stylospores very long, pellucid, curved.—*Fusarium tremelloides. Grev. t.* 20. *Eng. Fl.* v. *p.* 355. *Baxt. exs. no.* 50. *Moug. exs. no.* 396. *Cooke exs. no.* 343. *Berk. exs. no.* 103.

Ascophore. Cups shallow, scattered, or gregarious, erumpent, at first subglobose, gradually expanded, rather thick, even, or flexuous border, orbicular or elongated, sometimes confluent, bright orange; asci elavate; paraphyses slender, linear.—*Mag. Zool. & Bot. no.* 12, *t.* 2, *f.* 4. *Fckl. exs. no.* 1131. *Berk. exs. no.* 67. *Cooke exs. no.* 342. *P. neglecta. Lib. exs. no.* 29. *Calloria fusarioides. Fckl. Sym. Myc. p.* 282.

On dead nettle stems.

Cups scarcely a line in diameter; substance firm.
Sporidia oblong or fusiform oblong, ·011-·014 × ·003-·0035 m.m.—*Nyl. Karst.*

2115. Peziza micrometra. *B. & Br.* "Point-like Peziza."

Very minute, sessile, subturbinate, attached by strong villous hairs, brownish, mouth somewhat contracted, finely striate; asci clavate; sporidia filiform.—*Ann. N.H. no.* 773.

On dead stems of *Juncus.* Twyeross.

Extremely minute, punctiform, horn-brown; hymenium plane.—*B. & Br.*

2116. Peziza paulula. *Rob.* "Little rush Peziza."

Erumpent, scattered or gregarious, sessile, waxy, smooth, subglobose, very minute, externally olive-umber, internally pallid, mouth connivent, white, entire; asci short, broad, subcylindrical; sporidia oblong, obtuse, hyaline, with two nuclei.—*Ann. Sc. Nat.* (1851), xvi. *p.* 324, *Rob. Desm. exs. no.* 2010, ii. *no.* 1610. *Ann. N.H. no.* 960. *Kl. exs. no.* 823.

On *Juncus maritimus.* Isle of Wight.

Sporidia ·01 m.m. (·0003 in.) long.

2117. Peziza dematiicola. *B. & Br.* "Black mould Peziza."

Gregarious, very minute; cup hemispherical, watery umber, cileated with long hyaline flocci; disc cinereous; asci rather short; sporidia subcymbiform, hyaline.—*B. & Br. Ann. N.H.* 1865, *no.* 1070, *t.* 15, *f.* 20.

On dead wood, nestling amongst the flocci of some Helminthosporoid Fungus, but whether at all related or not we cannot say.

This very beautiful, though minute species, has a mixed resemblance to an *Excipula*, and such *Ascoboli* as *A. ciliatus.*—*M. J. B.*

2118. Peziza erythrostigma. *B. & Br.* "Red spot Peziza."

Minute, stipitate, punctiform, pale red; hymenium at length convex; asci clavate; sporidia uniseriate, elliptic, or subglobose.—*B. & Br. Ann. N.H.* (1866), *no.* 1168, *t.* 4, *f.* 31.

Parasitic on *Sphæria phœostroma.*

The stem is mostly curved, distinctly cellular; asci clavate; spores minute, subglobose; very minute, but a pretty object under the microscope.—*B. & Br.*

2119. Peziza peristomialis. *B. & Br.* "Holly Peziza."

Minute, cylindrical, pallid, mouth furnished with long white triangular teeth; disc nearly plane; asci lanceolate; sporidia biseriate, fusiform, multi-nucleate.—*B. & Br. Ann. N.H.* (1866), *no.* 1169, *t.* 5, *f.* 32.

On holly. Penzance.

A most exquisite object under a moderate magnifier, resembling some Actinia in miniature. Sporidia (·001 in.) ·025 m.m. long.—*B. & Br.*

2120. Peziza viburnicola. *B. & Br.* "Guelder-rose Peziza."

Subglobose, then hemispherical, grey, externally granulated; margin denticulate, furfuraceous; hymenium paler.—*B. & Br. Ann. N.H.* (1866), *no.* 1170.

On either side of dead leaves of Viburnum. Shere, Surrey.

Minute, punctiform, externally speckled with little dark tufts of cells, which sometimes give out a few short, flexuous hairs; asci clavate; sporidia lanceolate (·0004-·0005 in.) ·01-·012 m.m. long.

2121. Peziza nervisequia. *Desm.* "Plantain-leaf Peziza."

Seriate, black; cups nestling in an indurated, linear subiculum.—*Fr. S.M.* ii. *p.* 153. *Pers. M.E. p.* 308. *Desm. exs. no.* 2012. *B. & Br. Ann. N. H.* (1866), *no.* 1171.

On leaves of *Plantago lanceolata.* Feb. Near Batheaston.

Sporidia (·0004 in.) ·01 m.m. long.

Sect. 3. *Durella*—indurated, persistent, lichenoid.

2122. Peziza resinæ. *Fr.* "Resin Peziza."

Sessile, hard, urceolate, then patellate, orange; margin evanescent.—*Fr. S.M.* ii. *p.* 149. *B. & Br. Ann. N.H.* (1866), *no.* 1173. *Fckl. exs. no.* 1166. *Pezizicula resinæ, Fckl. Sym. Myc. p.* 279.

On resin. Jedburgh.

2123. Peziza melanotheja. *Fr.* "Little Black Peziza."

Sessile, minute, externally between farinaceous and villous, reddish yellow; disc becoming concave, black.—*P. melanoxantha, Fr. S.M.* ii. *p.* 97.

On oak branches. [Mid. Carolina.]

Small, but beautiful, gregarious, granuliform; disc at length plane, opaque; the margin prominent and entire.

2124. Peziza compressa. *A. & S.* "Compressed Peziza."

Sessile, innate, thin, blackish; disc black, when dry compressed, conchiform.—*Fr. S.M.* ii. *p.* 152. *A. & S. p.* 340. *Eng. Fl.* v. *p.* 207. *Durella commutata, Fckl. Sym. Myc. p.* 280. *Tul. Carp.* iii. *t.* 22, *f.* 8-14.

On hard wood. Perennial. Appin. [United States.]

Minute, scattered or crowded, black, opaque, externally often brownish, subrotund, elliptic, or angular; disc homogenous, black.

Sporidia cylindrical, curved, obtuse, triseptate. This seems more closely allied to *Patellaria* than to *Peziza*. The triseptate sporidia are those of a *Patellaria*.

2125. Peziza flexella. *Fr.* "Pine-wood Peziza."

Immersed, compressed, minute, concave, variously flexuose, black.—*Fr. S.M.* ii. *p.* 152. *Eng. Fl.* v. *p.* 207.

On dead wood, especially pine. Perennial. Appin. [Low. Carolina.]

Smaller than *P. compressa*, purer black.—*M.J.B.*

Gen. **297.** **HELOTIUM,** Fr.

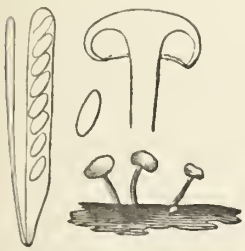


Fig. 332.

Disc always open, at first punctiform, then dilated, convex or concave, naked. Excipulum waxy, free, marginate, externally naked.—*Berk. Outl. p.* 371.

Disc convex . . . *Pelastea.*
Disc concave . . . *Calycella.*
(*Fig.* 332.)

Sub-Gen. 1. Pelastea, Fr.

Disc convex. Receptacle hollow beneath, or flattened.—*Berk. Outl. p.* 371.

2126. Helotium fibuliforme. *Fr.* "Staff-like Helotium."

Firm, head convex, yellow, black-brown beneath, as well as the short, thick, subvillose stem.—*Fr. S.M.* ii. *p.* 155. *Eng. Fl.* v. *p.* 207. *Bolt. t.* 176.

On elm.

2127. Helotium agaricinum. *Berk.* "Agaric-like Helotium."

Firm, dark green, convex, rather uneven; margin revolute; stem rather thick, obconic; asci long, flexuous, obtuse.—*Peziza agaricina, Carm. MSS. Eng. Fl.* v. *p.* 207.

On decayed wood. Appin.

Plant 1½-2 lines broad, very much resembling at first sight *Helotium virens*, but on closer inspection quite different.

2128. Helotium sclerotioides. *Berk.* "Sclerotium-like Helotium."

Convex, umbilicate, clear red-brown, concave beneath, and confluent with the short, obconic stem; asci slender; sporidia? —*Peziza sclerotioides. B. Eng. Fl.* v. *p.* 208.

On decayed wood. Appin.

At first sight resembling *Sclerotium quercigenum*, about one line broad.—*M. J. B.*

2129. Helotium aciculare. *Fr.* "Long-stemmed Helotium."

White, smooth, head convex; stem elongated, equal.—*Fr. S.M.* ii. *p.* 156. *Eng. Fl.* v. *p.* 208. *Bull. t.* 473, *f.* 1. *Helv. agaricif ormis, Bolt. t.* 98, *f.* 1. *Sow. t.* 57. *Pers. Obs. t.* 5, *f.* 1, *t.* 6, *f.* 1, 2. *Cooke exs. no.* 400.

On roots and old hollow stumps. Aug.—Dec. Common. [Mid. Carolina.]

Sporidia oblong or subfusiform. (*Fig.* 332.)

2130. Helotium subtile. *Fr.* "Little White Helotium."

White, minute, rather firm; head plano-convex; stem thin, short; sporidia sub-cylindrical or subfusiform, elongated.—*Fr. S.M.* ii. *p.* 157. *Eng. Fl.* v. 208. *Karst. exs. no.* 68. *Mon. Pez. p.* 141. *Fckl. exs. no.* 1160.

On fir leaves.

Stem not 1 line high, somewhat attenuated; head 1 line broad, at length slightly convex.—*Fries.*
Sporidia ·005-·007 m.m. long.—*Karsten.*
Sporidia attenuated, oblong, ·005-·007 × ·001-·0015 m.m.—*Nyl. Karst.*

2131. Helotium aeruginosum. *Fr.* "Green Helotium."

Verdigris-green, head turbinate, then expanded, subflexuose; disc paler; stem short.—*Berk. Outl. p.* 372. *Peziza æruginosa. Fr. S.M.* ii. *p.* 130. *Eng. Fl.* v. *p.* 202. *Grev. t.* 241. *Berk. exs.*

no. 281. *Sow. t.* 347. *Fl. Dan. t.* 534, *f.* 2. *Karst. exs. no.* 151-459. *Mon. Pez. p.* 142. *Rav. exs.* v. *no.* 40? *Fckl. exs. no.* 1158. *Chlorosplenium æruginosum. Tul. Carp.* iii. *p.* 187.

On fallen oak branches. [Mid. & Up. Carolina.]

Staining the wood on which it grows, for a considerable depth, of a deep verdigris-green; the wood so stained being employed as "green oak" in the manufacture of Tunbridge ware. The fully developed *Helotium* is much more rare than the green mycelioid state.
Sporida oblong, ·01-·014 × ·0035-·0045 m.m.—*Nyl.*
Sporidia elongated-oblong, slightly curved, ·01-·014 × ·003-·004 m.m.—*Karst.*

2132. Helotium serotinum. *Fr.* "Bright Yellow Helotium."

Bright yellow; head plano-convex, rather thin; stem short, firm, thickish.—*Berk. Outl. p.* 372. *Peziza serotina. Fr. S.M.* ii. *p.* 119. *Eng. Fl.* v. *p.* 201. *Helv. aurea. Bolt. t.* 98. *Fckl. exs. no.* 1157.

On sticks, &c., in watery places. [Mid. Carolina.]

Cup ¼ in. broad, sometimes growing almost in the water itself.
Sporidia elongated, curved, hyaline, simple.

2133. Helotium virgultorum. *Fr.* "Beech mast Helotium."

Tough, smooth, pallid, at length yellowish; cup patellæform; stem long, thin, flexuous; sporidia acicular-oblong or oblong, simple, or spuriously uniseptate, or granular.—*Peziza fructigena. Bull t.* 228. *Sow. t.* 117. *Eng. Fl.* v. *p.* 201. *Karst. Mon. Pez. p.* 132. *Rabh. exs.* ii. *no.* 510. *Desm. exs. no.* 1060, ii. *no.* 460. *Fckl. exs. no.* 1154. *Gonn. & Rabh.* iii. *t.* 6, *f.* 4.

On acorns, beech mast, &c. Common.

Cup 1-2 lines broad, shallow from the thickness of the flesh.
Sporidia fusiform or oblong, ·014-·023 × ·0035-·0045 m.m.—*Nyl.*?

var. β. **flavescens.** *Holms. t.* 11.

On willow.

Sporidia ·0033-·0041 m.m. long, and about six times as long.—*G. & R.*

2134. Helotium lutescens. *Fr.* "Yellowish Helotium."

Yellowish, small; cup hypocrateriform, orbicular; stem short, slender, subcylindrical.—*Peziza lutescens. Hedw. M. Fr.* ii. *t.* 9, *f.* 3. *Ann. N.H. no.* 826. *Fl. Dan. t.* 1440, *f.* 1. *Fr. S.M.* ii. *p.* 120.

On dead sticks amongst moss. Autumn. [Mid. Carolina.]

Helotium testaceum. See *Ascobolus.*

2135. Helotium conigenum. *Fr.* "Fir-cone Helotium."

Waxy or watery consistence, minute, pallid; head nearly plane, immarginate; stem thick, short, at length obliterated; sporidia subellipsoid.—*Berk. Outl. p.* 372. *Peziza conigena. Fr. S.M.* ii. *p.* 139. *Eng. Fl.* v. *p.* 205. *Karst. Mon. Pez. p.* 152. *Fckl. exs. no.* 1149.

On cones of Scotch fir.

Sporidia ellipsoid, simple, ·007-·008 × ·0035 m.m. *Nyl. Karst.*

2136. Helotium phascoides. *Fr.* "Moss Helotium."

Of a waxy or watery consistence; minute, pallid, with a brick-red tinge; head turbinate, plane; stem short, subequal.—*Berk. Outl. p.* 372. *Peziza phascoides. Fr. S.M.* ii. *p.* 138. *Eng. Fl.* v. *p.* 204.

On mosses.

2137. Helotium acuum. *Fr.* "Fir-leaf Helotium."

Minute, stipitate, slender, whitish; head nearly plane, externally slightly hairy; sporidia fusoid-elongated or fusoid-oblong. *Berk. Outl. p.* 372. *Peziza acuum. Fr. S.M.* ii. *p.* 95. *Berk. Outl. p.* 368. *Desm. exs.* i. *no.* 1536, ii. *no.* 1036. *Karst. Mon. Pez. p.* 181. *Fckl. exs. no.* 1153.

On dead fir leaves.

Sporidia oblong or subfusiform, ·004-·005 × ·0015 m.m.—*Nyl.*
Sporidia ·004-·006 × ·0015 m.m.—*Karst.*

2138. Helotium luteolum. *Curr.* "Yellow mud Helotium."

Cæspitose, pale straw colour; stem about $\frac{1}{5}$ inch long; disc 1 line wide, at first hollow, ultimately expanded and convex, the edge covered with very minute, parallel white hairs, giving a somewhat ribbed or channeled appearance; sporidia straight, or slightly curved, colourless; paraphyses clavato-elongate, acuminate, septate.—*Curr. Linn. Trans.* xxiv. *p.* 153, *t.* 25, *fig.* 11, 12, 18.

On a gorse stick, the end of which was sunk in the mud in a pool of water. May. Paul's Cray Common.

Remarkable in its densely cæspitose and apparently branching habit, and the paraphyses are very peculiar. Its aquatic habit is also an unusual character. Sporidia (·0004-·0005 in·) ·01-·012 m.m. long.

2139. Helotium aquaticum. *Curr.* "Aquatic Helotium."

Solitary, stem about $\frac{1}{6}$ in. long; disc minute, very little wider than the apex of the delicate, almost filiform stem; sporidia colourless, hyaline, with granules accumulated at each end. —*Curr. Linn. Trans.* xxiv. *p.* 154, *t.* 25, *f.* 19.

On a fragment of stick in water. May. Paul's Cray Common.

The fruit is large for the size of the plant; sporidia (·0007 in.) ·0177 m.m. long.

Sub.-Gen. 2. Calycella, Fries.

At first turbinate; disc concave; stem firm when present.—*Berk. Outl. p.* 372.

2140. Helotium tuba. *Fr.* "Tube Helotium."

Yellow; head turbinate; disc plane, margin swollen; stem long, slender.—*Berk. Outl. p.* 372. *Peziza tuba. Fr. S.M.* ii. *p.* 128. *Bolt. t.* 106, *f.* 1. *Eng. Fl.* v. *p.* 202. *Merulius tubæformis. With.* iv. *p.* 146.

On fallen branches.

Plant $\frac{1}{2}$ in. or more high.

2141. Helotium buccina. *Fr.* "Trumpet Helotium."

Rather large, infundibuliform, dull-yellow; stem thickened, striate, somewhat incurved.—*Berk. Outl. p.* 372. *Peziza buccina. Fr. S.M.* ii. *p.* 129. *Eng. Fl.* v. *p.* 202.

On wood and pine branches. Rare. Appin. [Mid. Carolina.]

2142. Helotium calyculus. *Fr.* "Yellow-brown Helotium."

Yellowish-brown; head concave, with an elevated margin; stem short, thick, clothed with whitish down.—*Berk. Outl. p.* 372. *Peziza calyculus, Fr. S.M.* ii. *p.* 129. *Eng. Fl.* v. *p* 202. *Sow. t.* 116. *P. infundibulum, Grev. Fl. ed. p.* 423.

On fallen branches.

About 2 lines high.

2143. Helotium infundibulum. *Fr.* "Funnel Helotium."

Ferruginous-red, smooth; stem short, dilated into the head.—*Fr. Peziza calyculus,* β. *infundibulum, Fr. S.M.* ii. *p.* 130. *Batsch. f.* 147. *Ann. N.H. no.* 961.

On dead sticks. Dec. Twycross.

2144. Helotium Aspegrenii. *Fr.* " Yellow and white Helotium."

Head somewhat waved, smooth; disc yellow externally, as well as the sub-ascending stem, white.—*Berk. Outl. p.* 372. *Peziza Aspegrenii, Fr. S.M.* ii. *p.* 131. *Sow. t.* 369, *f.* 7.

On wood.

2145. Helotium citrinum. *Fr.* " Lemon-colored Helotium."

Crowded, lemon-yellow; head plano-concave, together with the short, thick, paler stem, forming an inverted cone; sporidia oblong-elliptic, with 2-3 nuclei.—*Berk. Outl. p.* 372. *Peziza citrina. Fr. S.M.* ii. *p.* 131. *Eng. Fl.* v. *p.* 202. *Fckl. exs. no.* 1152. *Ray. Syn.* 3, *t.* 24, *f.* 4. *Hedw. t.* 8, *f. B. Karst. exs. no.* 80, 458. *Karst. Mon. Pez. p.* 143. *Batsch. f.* 218. *Peziza aurea, Sow. t.* 150.

On old stumps. Common. [United States.]

Often clustered together in large patches.
Sporidia ellipsoid, simple, ·009-·012 × ·0035-·0045 m.m.—*Nyl.*
Sporidia with 2-3 minute nuclei, ·007-·014 × ·003-·004 m.m.—*Karst.*

2146. Helotium pallescens. *Fr.* " Pallid Helotium."

Crowded, smooth, pale yellow or whitish, inclining to pallid; head concave; stem short, rather thickened, pallid.—*Berk. Outl. p.* 372. *Peziza pallescens, Fr. S.M.* ii. *p.* 132. *Eng. Fl.* v. *p.* 203. *Hoffm. Cr. t.* 13. *Karst. exs. no.* 640. *Karst. Mon. Pez. p.* 145.

On old stumps. Autumn. [Mid. Carolina.]

White at first, then of a beautiful apricot colour, which is retained by the dried plant; rather crisp, ½ line broad; margin distinct, sometimes flexuous; stem and cup, which together form an inverse cone, sometimes marked externally with transverse ridges.—*M.J.B.*
Generally accompanied by a species of *Torula.*
Sporidia oblong or fusiform 1-3 septate, ·011-·02 × ·003-·004 m.m.—*Nyl.*
Sporidia with 2-4 nuclei, or 1-3 septate, straight or slightly curved ·010-·018 × ·003 m.m.—*Karst.*

2147. Helotium lenticulare. *Fr.* " Lenticular Helotium."

Convex, adpressed, firm, yellow; stem papillæform, blackish.—*Berk. Outl. p.* 372. *Peziza lenticularis, Fr. S.M.* ii. *p.* 133. *Eng. Fl.* v. *p.* 203. *Bull. t.* 300. *Fl. Dan. t.* 1294, *f.* 1. *Fckl. exs. no.* 1151.

On old stumps.

Sporidia ovate-oblong, hyaline, simple, with one or two nuclei.

2148. Helotium ochraceum. *Fr.* "Ochraceous Helotium"

Ochrey-brown, minute, gregarious, thick, carnose, obconic; hymenium minutely granular, at length plane or sub-convex.—*Berk. Outl. p.* 372. *Peziza ochracea, Grev. t.* 5. *Eng. Fl.* v. *p.* 204.

On old stumps. Autumn.

Not 1 line broad, thick, puckered, or rugose at the base; margin equal or irregular, rounded, and depressed; hymenium sprinkled with minute shining particles, resembling grains of brown sugar. In drying it does not change.—*Grev.*

2149. Helotium cribrosum. *Berk.* "Black Helotium."

Black, solitary, rather large, very concave; hymenium cribriform, or full of lacerated, irregular pores and sinuses.—*Peziza cribrosa, Grev. Fl. ed. p.* 423. *Eng. Fl.* v. *p.* 203.

On sandy or gravelly ground.

Large, ½-1 in. broad, hemispherical, at length partly spreading, but always deeply concave, wholly black, but deeper within, somewhat rugose at the base externally; margin entire, even.—*Grev.*

2150. Helotium claro-flavum. *Berk.* "Bright Yellow Helotium."

Yellow, gregarious, minute, obconical, at length somewhat plane; margin raised, obtuse, externally somewhat paler.—*Peziza claro-flava, Grev. Fl. ed. p.* 424. *Eng. Fl.* v. *p.* 203.

On decayed wood and branches.

Very minute, the largest not half a line broad, always concave; whole plant very bright yellow; hymenium darker.—*Grev.*

2151. Helotium salicellum. *Fr.* "Willow-twig Helotium."

Ochraceous, becoming pallid, firm, adpressed, plane; stem very short, pallid; sporidia fusoid-oblong with 2-4 nuclei.—*Berk. Out. p.* 372. *Peziza salicella, Fr. S.M.* ii. *p.* 133. *Ann. N.H. no.* 573.* *Karst. Mon. Pez. p.* 134. *Fckl. exs. no.* 1164.

On willow twigs. Aug.—Oct.

Sporidia oblong, or fusiform oblong, ·023-·03 × ·005-·007 m.m.—*Nyl.*
Sporidia slightly curved with 2-4 nuclei, or 1-3 spurious septa, ·025-·029 × ·005-·006 m.m.—*Karst.*

2152. Helotium versiforme. *Fr.* "Twisted Helotium."

Gregarious, substipitate; head deformed, somewhat twisted, yellow-olive, externally purplish; sporidia elongated and obtuse at either end.—*Berk. Outl. p.* 372, *t.* 2, *f.* 6. *Peziza versi-*

formis, Fr. S.M. ii. *p.* 130. *Pers. Ic. & Des. t.* 7, *f.* 7. *Ann. N.H. no.* 159. *Karst. Mon. Pez. p.* 141. *Berk. exs. no.* 274.

On ash stumps. Apethorpe. [Up. Carolina.]

Sporidia elongated, ·008-·014 × ·003-·004 m.m.—*Karst.*

2153. Helotium subsessile. *Sch.* "Umber Helotium"

Small, pallid; head plano-convex; disc pale-umber; stem very short, umber-brown at the base; asci clavate; sporidia oblong, sublanceolate, with two or more nuclei.—*Schum. Saell. p.* 415. *Berk. Outl. p.* 372. *Peziza helotioides, Fr. S.M.* ii. *p.* 135. *Ann. N.H. no.* 573. *Fl. Dan. t.* 1855, *f.* 3.

On dead branches. Oct. King's Cliffe.

Of a dull ochre rather than umber, the stem is very thick, obconical, and merely a prolongation of the pileus; the hymenium convex.—*M.J.B.*

2154. Helotium pruinosum. *Jerd.* "Frosted Helotium."

Minute, sessile, or very shortly stipitate, entirely white, pruinose; disc pale flesh colour; sporidia elongato-cymbiform, 3-4 nucleate.—*B. & Br. Ann. N.H.* (1866), *no.* 1174, *t.* 5, *f.* 33.

On *Hypoxylon fuscum* and *Diatrype stigma.* Scotland.

The hymenium, which has sometimes a slight bluish tinge, is pruinose, as well as the outer surface; sporidia ·0006 in. long (sometimes ·0004-·0005 in. long), ·015 m.m. (·01-·012 m.m.).

2155. Helotium rhizophilum. *Fckl.* "Grass-root Helotium."

Cups at first infundibuliform, then plane, immarginate, externally and stem whitish mealy; disc egg-yellow; asci linear, attenuated at each end; sporidia sub-distichous, cylindrical, straight, hyaline.—*Fckl. exs. no.* 1598. *Ciboria rhizophila, Fckl. Sym. Myc. p.* 312.

On rhizomes of grasses. May. Shere. *(E. C.)*

Cups 1½ line broad; stem 3 lines long.

2156. Helotium herbarum. *Fr.* "Herbaceous Helotium."

Between fleshy and waxy, smooth, white; head plano-convex, adpressed; stem very short; sporidia elongated, straight, or curved.—*Berk. Outl. p.* 372. *Peziza herbarum, Fr. S.M.* ii. *p.* 136. *Eng. Fl.* v. *p.* 204. *Karst. Mon. Pez. p.* 146. *Karst. exs. no.* 81. *Rabh. F.E.* ii. *no.* 810. *Desm. exs.* 1, *no.* 603, ii. *no.* 568. *Fckl. exs. no.* 1147.

On dead leaves, stems, &c. Autumn. [Mid. Carolina.]

Gregarious, fleshy, adpressed, convex, sometimes depressed; stem extremely short.—*Eng. Fl.*
Sporidia fusiform, ·01-·014 × ·002-·0025 m.m.—*Nyl.*
Sporidia straight or curved, uniseptate, ·009-·014 × ·002 m.m.—*Karst.*

2157. Helotium epiphyllum. *Fr.* "Dead leaf Helotium."

Subsessile, smooth, convexo-plane, marginate, pallid-ochraceous.—*Berk Outl. p.* 372. *Peziza epiphylla. Fr. S.M.* ii. *p.* 137. *Karst. Mon. Pez. p.* 143. *Fckl. exs. no.* 1145.

On dead leaves. [Mid. Carolina.]

Sporidia oblong, or fusiform oblong, simple, ·013-·018 × ·0035-·0045 m.m. *Nyl.*
Sporidia straight or curved, ·012-·017 × ·003-·004 m.m.—*Karst.*

2158. Helotium fagineum. *Fr.* "Beech Helotium."

Minute; head nearly plane, whitish; stem short, thick.—*Berk. Outl. p.* 372, *Peziza faginea. Fr. S.M.* ii. *p.* 136. *Scop. Ann.* iv. *t.* 2, *f.* 3. *Johnst. Fl. Berw.* ii. *p.* 150. *Eng. Fl.* v. *p.* 204. *Ann. N.H. no.* 963*. *Fckl. exs. no.* 1146.

On decayed twigs, straws, beech mast, &c.

Sporidia ovate-oblong, hyaline, continuous.

2159. Helotium punctatum. *Fr.* "Point-like Helotium."

Bright yellow, very minute, gregarious, punctiform, globular, at length plane, or subconvex, margin minutely crenate.—*Grev. t.* 63. *Eng. Fl.* v. *p.* 206.

On dead oak leaves. Near Edinburgh.

2160. Helotium marchantiæ. *Fr.* "Marchantia Helotium."

Rather thick, obconic, pale yellowish-brown, marginate, flexuose; disc flat; asci elavate; sporidia elliptic.—*Berk. Outl. p.* 372. *Peziza marchantiæ. Berk. Eng. Fl.* v. *p.* 204.

On fading *Marchantia hemispherica.* May. Whittlesea Mere.

Smooth 1½ line broad, head quite confluent with the thick stem, so as to be irregularly and obtusely obconic; flesh white; hymenium thin.—*M. J. B.*

2161. Helotium ferrugineum. *Fr.* "Rusty Helotium."

Substipitate, obconic, disc concave, ferruginous-yellow, externally and tumid margin pallid yellow.—*Fr. S.V.S. p.* 356. *Peziza ferruginea. Fr. S.M.* ii. *p.* 134. *Bull. t.* 300, *var. Ann. N.H. no.* 962.

On dead wood. Twycross.

Gen. **298.** **PSILOPEZIA,** Berk.

Indeterminate, immarginate, agglutinate; hymenium always exposed.—*Berk. Outl. p.* 373.

The typical representative of this genus has only been found once. It resembles a *Rhizina* more than a *Peziza*, though at first included with the latter, but it has not the peculiar roots of the former. The spores differ also from those in *Rhizina*.

2162. **Psilopezia Babingtonii.** *Berk.* "Babington's Psilopezia."

Small, convex above, mouse brown, fixed by the margin; beneath concave, pale watery-brown, slightly rugose, with obsolete fibrils; spores broadly elliptic; paraphyses linear, clavate.—*Berk. Outl. p.* 373. *Peziza Babingtonii. Ann. N.H. no.* 554.

On rotten wood. Grace Dieu Wood, Leicestershire.

Cup ½ in. or more broad, contracting greatly in drying, irregular in outline, convex above, mouse brown, concave beneath, and slightly wrinkled, pale watery brown, fixed by the border; asci linear; spores broadly elliptic; paraphyses linear, their apices clavate.

Gen. **299.** **PATELLARIA,** Fr.

Fig. 333.

Receptacle patellæform, margined, always open; hymenium even, subpersistent, but dusty, from the breaking up of the asci; asci fixed.—*Berk. Outl. p.* 373. *Fr. S.M.* ii. *p.* 158. *(Fig.* 333.*)*

2163. **Patellaria atrata.** *Fr.* "Large Black Patellaria."

Subcoriaceous, patellæform, sessile, plane, black, margin swollen; disc subpruinose; asci cylindrico-clavate; sporidia subclavate, 5-7 septate.—*Fr. S.M.* ii. *p.* 160. *Eng Fl.* v. *p.* 208. *Hedw. t.* 21, *f. A. Nees. f.* 265 *B. Lecanidion atrum. Rabh. Hdbk. p.* 342. *Fckl. exs. no.* 1118.

On dead wood. [United States.]

Sporidia (·0018-·0025 in.) ·045-·06 m.m. long; paraphyses clavate.—*C. E. B.*

Dr. Capron has a black *Patellaria* similar to, but smaller than *P. atrata*, in which the sporidia are biseriate, broadly clavate, rounded at each end, 9 septate, with a nucleus in each cell, except the terminal, ·0015-·0020 in. long (*Fig.* 333.)

2164. Patellaria rhabarbarina. *Berk.* "Rhubarb-coloured Patellaria."

Minute, sessile, disseminated, plane, or slightly convex, ochraceo-ferruginous, externally clothed with tawny, mealy pubescence; flesh bright rhubarb-coloured; asci clavate; sporidia oblong; paraphyses spathulate.—*Berk. Outl. p.* 373. *Rav. exs.* v. *no.* 46. *Peziza rhabarbarina. Eng. Fl.* v. *p.* 197. *Berk. exs. no.* 271. *Ann. N.H. no.* 89. *Pez. ardenensis. Mont. Ann. Sc. Nat.* v. *p.* 287. *Patellaria rubi. Lib. exs. no.* 231. *Pezicula rhabarbarina. Tul. Carp.* iii. *p.* 183. *Helotium rubi. Rabh. F.E.* 717. *Fckl. exs. no.* 2075.

On dead bramble. [United States.]

2165. Patellaria citrina. *B. & Br.* "Lemon-coloured Patellaria."

Cups plane, externally pallid; hymenium lemon-coloured; asci clavate; sporidia filiform.—*Ann. N.H. no.* 583. *Berk. Outl. p.* 373. *Ascobolus citrinis. Chev. F. Ill.* i. *t.* 31.

On rose twigs in a running stream. April. Near Swansea.

It has a broad, flat, yellow hymenium, with a pale border. The asci are clavate, and contain long filiform sporidia.

2166. Patellaria clavispora. *B. & Br.* "Club-spored Patellaria."

Soft, when young nearly globose, when older expanding, subirregular, pitch-brown; sporidia clavate, 4-6 septate.—*B. & Br. Ann. N.H. no.* 774.

On twigs of privet. Nov. Lucknam, Wilts.

Substance beneath the hymenium paler; asci cylindrical; sporidia elongated, clavate (·001 to ·0014 in.) ·025-·035 m.m. long, 4-6 septate; paraphyses branched, bearing at their tips one or more dark bodies, sometimes arranged like the joints of a necklace. The fructification is so remarkable that there can be no difficulty in recognising it, though its external appearance does not differ greatly from some other species. An American species *P. Ravenalii* B, has a similar development of the tips of the paraphyses.

2167. Patellaria livida. *B. & Br.* "Livid Patellaria."

Gregarious, often crowded, subhemispherical, sessile, olivaceous-yellow, margin whitish; externally minutely silky; asci subfusiform; sporidia oblong, or elliptic.—*B. & Br. Ann. N.H. no.* 775.

On fallen firs. Dec. Gopsal.

Minute, olivaceous-yellow, greyish when dry, sessile, hemispherical, fixed by a small point, minutely silky externally, margin dirty white; hymenium plane; asci subfusiform, bulging in the centre, often geniculate; sporidia oblong or elliptic (perhaps immature). It has a Lichenoid aspect, but has no crust whatever.

2168. Patellaria atro-alba. *Cooke.* "Black and white Patellaria."

Gregarious or scattered, small, sessile, at length plane, black; disc white; sporidia fusiform, 7-septate, hyaline.

On decorticated sticks. Shere (E. C).

Variable in size, usually gregarious, but always small; readily distinguished from its allies by the white disc; sporidia broadly fusiform (·0013 in.) 03 m.m. long.

2169. Patellaria discolor. *Mont.* "Umber Patellaria."

Ceraceous, suberumpent, gregarious, sessile, plano-patellate; externally umber-brown; disc waxy-yellow; asci clavate; sporidia fusiform, hyaline, with 4 nuclei..—*Mont. Syll. p.* 190. *Berk. Outl. p.* 373.

On fallen branches. [Low. Carolina.]

2170. Patellaria proxima. *B. & Br.* "Allied Black Patellaria."

Orbicular, shield-like, depressed, somewhat immersed, black; asci clavate; sporidia oblong, obtuse at either end, slightly curved. 4-5 septate.—*Ann. N.H. no.* 965, *t.* 16, *f.* 18.

On dead oak. Dec. Barking.

Closely resembling *P. atrata*, but differing materially in the fruit.

2171. Patellaria atro-vinosa. *Blox.* "Purplish Patellaria."

Gregarious; disc minute, round, or of irregular outline, almost black, distinctly margined; margin of a vinous purple colour; sporidia almost colourless, but with a greenish tinge, narrowly almond-shaped or curved; endochrome tripartite.—*Curr. Linn. Trans.* xxiv. *p.* 155, *t.* 25, *f.* 31. *B. & Br. Ann. N.H. no.* 1078.

Gopsal, near Twycross.

The description is taken from the dried plant. The specimens grew in a densely crowded manner, and the difference in colour between the disc and margin is very striking. Sporidia (·0009 in.) ·022 m.m. long.

2172. Patellaria aquatica. *Curr.* "Aquatic Patellaria."

Disc minute, scarcely a line wide, of a brownish tinge, distinctly margined, usually quite round and compact; sporidia colourless, 1-3 septate.—*Curr. Linn. Trans.* xxiv. *p.* 155, *t.* 25, *f.* 23. *B. & Br. Ann. N.H. no.* 1079.

On dead rushes, in water. Weybridge. May, 1862.

The shape of the sporidia varies from cylindrical (and uniseptate) when young, to elliptical (2-3 septate), when mature (·0009-·0011 in.) ·022-·027 m.m. long. The excipulum is formed of small distinct brown cells.

2173. Patellaria palustris. *Curr.* "Swamp Patellaria."

Disc very dark bluish-gray, almost black, margined, round, or irregular, not a line wide; excipulum composed of small, distinctly outlined cells; sporidia colourless, narrowly turbinate, elliptical or curved.—*Curr. Linn. Trans.* xxiv. *p.* 155, *t.* 25, *f.* 35. *B. & Br. Ann. N.H. no.* 1080.

On dead rushes in water. Paul's Cray. May, 1862.

Sporidia (·0004-·0005 in.) ·01-·0125 m.m. long.

2174. Patellaria olivacea. *Batsch.* "Olive Patellaria."

Disc at first circular, dark olive-green; margin greenish-brown, strongly incurved, ribbed and granular; disc ultimately effused, dark olive-green, with a narrow brown margin, the latter very slightly incurved; sporidia elliptical, or slightly turbinate, clear bluish-green, uniseriate, binucleate.—*Rhizina nigro-olivacea*, *Curr. Linn. Trans.* xxiv *p.* 494, *t.* 51, *f.* 10-12. *Patellaria olivacea*, *Batsch. f.* 51. *B. & Br. Ann. N.H. no.* 1077, *t.* 15, *f.* 22.

On rotten willow.

It runs over the wood in an irregular manner, like the thallus of a *Peltidea*. In its young state it is truly *Peziza*-like, and very beautiful; sporidia (·0003-·0004 in.), ·0076-·01 m.m. long; disc at first ⅛ to ¼ in., ultimately ½ in. or more across.

2175. Patellaria bicolor. *Curr.* "Two-coloured Patellaria."

Disc variable in size, bright golden-yellow, fringed with rough hairs, sometimes of the same colour as the disc, sometimes of a beautiful scarlet, occasionally there is a tuft of hairs in the middle of the disc, corresponding with the point of attachment

to the wood; sporidia colourless, biseriate, slightly curved, 3-septate.—*Curr. Linn. Trans.* xxiv. 491, *t.* 51, *f.* 15, 16.

On wood somewhat decayed.

It might at first sight be taken for a *Peziza*, but the toughness of its texture, and its septate sporidia point clearly to the genus *Patellaria*; disc not more than $\frac{1}{2}$ in. broad; sporidia (·0007-·0008 in.) ·0177-·02 m.m. long. —*F.C.*

2176. Patellaria constipata. *Blox. MSS.* "Fir-bark Patellaria."

Gregarious, or in a short series, irregular, compressed and contorted, shortly stipitate, furfuraceous, honey-coloured or brownish; sporidia biseriate, cylindrical obtuse, triseptate, slightly constricted, hyaline, or yellowish.

On bark of firs. Gopsal. (Rev. A. Bloxam.)

2177. Patellaria lignyota. *Fr.* "Sooty Patellaria."

Sessile, dry, convexo-plane, then expanded, blackish; margin tumid; disc dingy; sporidia elliptical, uniseptate, brownish.—*Rabh. no.* 1152. *Peziza lignyota*, *Fr. S.M.* ii. *p.* 150. *Ann. N.H. no.* 579.

On dead wood. Feb. Wraxall. Shere.

Scattered or subgregarious, $\frac{1}{4}$ line broad, thin, horny when dry, black, softer when moist; disc sooty-black, subperennial; sporidia somewhat resembling those of a *Diplodia*.

2178. Patellaria parvula. *Cooke.* "Little Black Patellaria."

Minute, scattered, black, somewhat erumpent, thin, contorted when dry; margin linear; sporidia elongated-elliptical, rounded at the ends, triseptate, hyaline.

On bleached decorticated sticks. Shere. (E.C.)

Sporidia (·0008 in.) ·02 m.m. long.

2179. Patellaria lecideola. *Fr.* "Lecidea-like Patellaria."

Sessile, minute, somewhat horny, concave, black, seated upon a cinereous spot-like crust.—*Peziza lecideola*, *Fr. S.M.* ii. *p.* 151. *Fr. Obs.* i. *t.* 4, *f.* 1. *Excipula lecideola*, *Fries. exs. no.* 157.

On dead wood.

Gen. **300.** **SPHINCTRINA,** Fr.

Fig. 334.

Excipulum almost horny, naked, pierced with a narrow, quite entire mouth; disc at length dusted with the sporidia.—*Berk. Outl. p.* 373. (*Fig.* 334.)

2180. Sphinctrina turbinata. *Fr.*
"Top-shaped Sphinctrina."

Receptacles turbinate, sub-sessile, black, shining; disc punctiform, black, opaque; asci cylindrical; sporidia globose, brown. —*Fr. S. V. S. p.* 366. *Sphæria sphinctrina, Sow. t.* 386, *f.* 1. *Bull. t.* 444, *f.* 1. *Calicium turbinatum, Pers. disp. Supp.* 56. *Fckl. exs. no.* 1116. *Ach. Meth. p.* 56. *Linds. Pop. Lich. t.* xvi. *f.* 16-19.

On *Pertusaria.* [United States.]

This species is inserted here, although I do not consider it a fungus, but rather a lichen. (*Fig.* 334).

2181. Sphinctrina tigillaris. *B. & Br.* "Rafter Sphinctrina."

Stem short, cylindrical; head elliptic; sporidia oblong, uniseptate.—*B. & Br. Ann. N.H.* (1865), *no.* 1093.

On an old *Polyporus*, from a beam in King's Cliffe Church, and on wood. Batheaston.

Extremely minute, looking at first like a little *Stilbum*. It gives off a few threads on the surface of the matrix. The stem consists of little oblong cells. Sporidia (·00015-·0003 in.) ·0035-·0075 m.m. long.

Gen. **301.** **LAQUEARIA,** Fr.

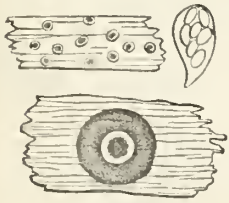


Fig. 335.

Disc waxy, persistent, without any hypothecium, but covered with a horny, coriaceous, dimidiate, superior, deciduous, excipulum; mouth contracted.—*Berk. Outl. p.* 373. (*Fig.* 335.)

2182. Laquearia sphæralis. *Fr.* "Urn-shaped Laquearia."

Erumpent, hemispherical, brown black, urceolate; mouth contracted, entire; disc plane, black; asci oblong, sessile;

sporidia minute, oblong-elliptic, hyaline, simple.—*Fr. S.V.S. p.* 366. *Berk. Outl. p.* 373. *Stictis sphæralis, Fr. S.M.* ii. *p.* 194. *Eng. Fl.* v. *p.* 213. *Fckl. exs. no.* 2066.

On dead branches of ash. Winter. (*Fig.* 335.)

Gen. **302.** **TYMPANIS,** Tode.

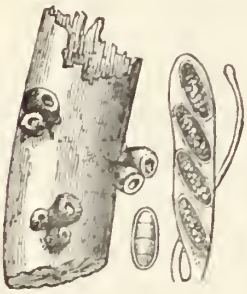


Fig. 336.

Receptacle margined, cyathiform, horny; hymenium at first veiled, then breaking up.—*Fr. S.M.* ii. *p.* 173. *Berk. Outl. p.* 373. (*Fig.* 336.)

2183. Tympanis frangulæ. *Fr.* "Buckthorn Tympanis."

Sessile, turbinato-truncate, roundish, opaque, blackish; disc umber, margin sub-obliterated; asci broadly cylindrico-oblong, very obtuse; sporidia ovate or ovate-oblong, at length 3-4 septate, brown.—*Fr. S.M.* ii. *p.* 174. *Fckl. exs. no.* 764. *Dermatea frangulæ, Tul. Carp.* iii. *p.* 161. *Ann. Sc. Nat.* xx (1853), *t.* 16, *f.* 1-8. *Pezizicula frangulæ. Fckl. Sym. Myc. p.* 279, *t.* 4, *f.* 46.

On *Rhamnus frangula.* Shere (Surrey), and Highgate (Middlesex).

The stylosporous condition is not uncommon late in the autumn, and during winter; the ascigerous state was collected in April. (*Fig.* 336.)

2184. Tympanis alnea. *Pers.* "Alder Tympanis."

Substipitate, opaque, blackish-umber; cups subflexuose, obsoletely marginate; asci oblong; sporidia filiform, continuous. —*Fr. S.M.* ii. *p.* 174. *Eng. Fl.* v. *p.* 210. *Fckl. exs. no.* 768 *Cenangium alneum. Fckl. Sym. Myc.*

On alder. Appin.

Minute, at first resembling a cæspitose *Sphæria*, externally brownish.

2185. Tympanis fraxini. *Schm.* "Ash Tympanis."

Subsessile, turbinato-truncate, shining, black; disc plane, rugose, marginate.—*Fr. S.M.* ii. *p.* 174. *Eng. Fl.* v. *p.* 210. *Cenangium fraxini. Tul. Ann Sc. Nat.* xx. *p.* 140. *Fckl. exs. no.* 1125.

On ash branches. Winter and spring. [Mid. Carolina.]

Breaking through the bark in small fascicles, consisting of a few individuals only, which increase in breadth from the base; margin prominent, obtuse, flexuous; disc opaque, rather solid, punctato-rugose.—*Fries.*

2186. Tympanis conspersa. *Fr.* "Apple Tympanis."

Cæspitose, at first closed, sphæriæform, naked, black, soon open, whitish and pulverulent from the fragments of the broken veil.—*Fr. S.M.* ii. *p.* 175. *Grev. t.* 335. *Berk. exs. no.* 160. *Ust. Ann.* i. *t.* i, *f.* 6. *Fckl. exs. no.* 769. *Nees. f.* 231. *Eng. Fl.* v. *p.* 211. *Tul. Ann. Sc. Nat.* xx. (1853), *t.* 16, *f.* 15-16. *Cenangium conspersum. Fckl. Sym. Myc, p.* 272.

On apple, hawthorn, &c. [Mid. Carolina.]

2187. Tympanis ligustri. *Tul.* "Privet Tympanis."

Sessile, subelongated, rather shining, black; disc concave, marginate; asci broadly cylindrical; sporidia, minute, ovate, or ovate-oblong, numerous.—*Tul. Carp.* iii. *p.* 154. *T. saligna. Fr. S.M.* ii. *p.* 176 (*in part.*) *Tode* i. *t.* 4, *f.* 57. *Ann. N.H. no.* 584. *Fckl. exs. no.* 767. *Berk. Outl. t.* 1, *f.* 10. *Rabh. exs. no.* 229. *Cenangium ligustri. Fckl. Sym. Myc. p.* 268.

On privet.

"A very curious circumstance has occurred in this species. In the same hymenium the fruit of a *Diplodia* and that of a *Tympanis* were present."—*B. & Br.*

Gen. **303. CENANGIUM,** Fr.

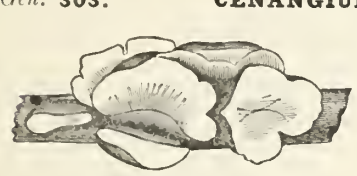


Fig. 337.

Receptacle coriaceous, closed at first, then open, marginate, covered with a thick enticle; hymenium persistent.—*Fr. S. M.* ii. *p.* 178. *Berk. Outl. p.* 374. (*Fig.* 337.)

2188. Cenangium ribis. *Fr.* "Currant Cenangium."

Cæspitose, nearly naked, blackish-brown, cup subturbinate, margin fimbriate, sub-connivent; disc pallid; stems connate, in a tubercle; asci linear, obovate; sporidia crowded, linear, elavate, straight at length 3-6 septate. —*Fr. S.M.* ii. *p.* 179. *Schm. exs. no.* 75. *Fries. exs. no.* 131. *Fckl. exs. no.* 2277. *Ann. N.H. no.* 585. *Tul. Ann. Sc. Nat.* xx. (1853), *t.* 16, *f.* 9-11. *Tul. Carp.* iii. *p.* 164, *t.* 19, *f.* 1-9.

On currant twigs.

Sporidia ·035-·038 m.m. long, ·004-·005 m.m. broad.

2189. Cenangium cerasi. *Fr.* "Cherry Cenangium."

Pycnidia. Perithecia pustulate, innate, sub-cylindrical, deformed by mutual pressure; ostiola white; spores curved above. *Micropera drupacearum. Lev. Ann. Sc. Nat.* (1846), *p.* 283. See no. 1375, ante.

Ascophore. Subcæspitose, irregular, at first tuberculate, rugose, reddish-clay colour, at length expanding into blackish cups, plane above; sporidia oblong, rounded at the ends, curved, hyaline, simple.—*Fr. S.M.* ii. *p.* 179. *Eng. Fl.* v. *p.* 211. *Pers. Ic. pict. t.* 20, *f.* 1. *Berk. exs. no.* 161. *Moug. exs. no.* 494. *Tul. Ann. Sc. Nat.* xx. (1853), *t.* 16, *f.* 12, 13. *Pez. cerasi. Grev. Fl. Ed. p.* 426.

On wild cherry, &c. [S. Carolina.]

2190. Cenangium prunastri. *Fr.* "Sloe Cenangium."

Subcæspitose, rather horny, naked, blackish; cups at first awl-shaped, then open, concave, substipitate.—*Fr. S.M.* ii. *p.* 180. *Berk. exs. no.* 163. *Eng. Fl.* v. *p.* 211. *Dermatea prunastri. Fckl. exs. nos.* 1843, 1126. *Peziza prunastri. Grev. Fl. Ed. p.* 425.

On sloe. [Mid. Carolina.]

Bursting through the bark in the guise of awl-shaped bodies, which gradually become depressed in the centre, and at length expand into a cup. *C. cerasi* sometimes puts on the same form.—*M. J. B.*

2191. Cenangium aucupariæ. *Fr.* "Mountain Ash Cenangium."

Cæspitose, black, sprinkled with whitish meal; cups at first elongated, somewhat cylindrical, closed, at length open at the apex.—*Fr. S.M.* ii. *p.* 181. *Eng. Fl.* v. *p.* 212. *Peziza aucupariæ. Grev. Fl. Ed. p.* 426.

On mountain ash. Autumn.—Spring.

2192. Cenangium pulveraceum. *Fr.* "Powdery Cenangium."

Gregarious, blackish, covered with a dense cinereous powder; cup subglobose, with the simple stem turbinate.—*Fr. S.M.* ii. *p.* 181. *Eng. Fl.* v. *p.* 212. *A. & S. t.* 8, *f.* 2.

On wood. [Up. Carolina.]

2193. Cenangium fuliginosum. *Fr.* "Sooty Cenangium."

Cups irregular, dingy-brown, crowded into broad patches; disc pale, growing in a widely effused, more or less ambient,

subiculum; paraphyses simple or forked; asci clavato-linear; sporidia filiform-lanceolate, multi-septate.—*Fr. El.* ii. *p.* 23. *Eng. Fl.* v. *p.* 212. *Tul. Carp.* iii. *p.* 166.

On sallow branches.

Sporidia.

2194. Cenangium ferruginosum. *Fr.* "Rust-coloured Cenangium."

Gregarious, coriacco-membranaceous, subsessile, rugose, subpruinose, reddish-black, mouth compressed, inflexed, spreading when moist; disc yellowish; asci obovate-oblong; sporidia ovate or ovate-oblong, obtuse.—*Fr. Scler. exs. no.* 292. *Eng. Fl.* v. *p.* 212. *Grev. t.* 197. *Fckl. exs. no.* 1122. *Clithris ferruginosum. Fr. S.M.* ii. *p.* 187. *Moug. exs. no.* 399.

On Scotch fir. [Mid. Carolina.]

Cups covered with ferruginous powder.
Sporidia ·01 m.m. long, each containing one or two nuclei. (*Fig.* 337.)

2195. Cenangium rubi. *Fr.* "Raspberry Cenangium."

Innato-erumpent; cups somewhat horny, even, nearly plane, black; at length the disc open, becoming pale.—*Grev. t.* 334. *Excipula rubi. Fr. exs. no.* 101, *S.M.* ii. *p.* 190. *Eng. Fl.* v. *p.* 296.

On raspberry.

Gen. **304. ASCOBOLUS,** Tode.

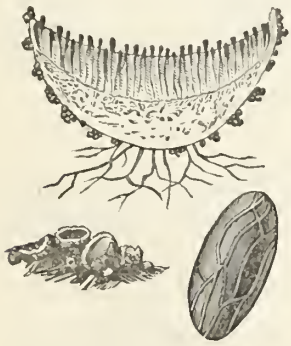


Fig. 338.

Receptacle orbicular, marginate; disc patellæform; asci exploded.

(*Fig.* 338.)

A. *Epixyles vel terrestres.*

2196. Ascobolus denudatus. *Fr.* "Naked Ascobolus."

Gregarious, yellowish-green, smooth, turbinate, substipitate; disc plane; asci clavate; paraphyses simple; sporidia violet, ir-

regularly rugose, ovate, or elliptic.—*Fr. S.M.* ii. *p.* 164. *Cooke Seem. J. Bot. May*, 1864, *fig.* 2. *Fckl. exs. no.* 1849. *B. & Br. Ann. N.H. no.* 1083, *t.* 16, *f.* 24. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 5, *f.* 3.

On old fir poles. On the ground attached to little roots, &c. Oct. Marlborough Forest.

Sporidia violet coloured when mature, irregularly rugose, ovate or elliptic (·0007-·0008 in.) ·0177-·02 m.m. long.

2197. Ascobolus viridis. *Curr.* "Green Ascobolus."

Sessile, plane, or very slightly concave, of a dark, dingy, yellowish-green colour, externally very furfuraceous, almost tomentose; sporidia elliptic-acuminate, rugoso-striate, amethyst-purple.—*Curr. Linn. Trans.* xxiv. *p.* 154, 1863. *Cooke Seem. Journ.* 1864. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 5, *f.* 4. *B. & Br. Ann. N.H. no.* 1081.

On clay ground. Sept. Oct. Near Bristol.

2198. Ascobolus Crouani. *Cooke (non Boud).* "Vermillion Ascobolus."

Vermillion-red, sessile, fleshy, smooth, first urceolate, then hemispherical; hymenium flat, surrounded by a more or less incised, soft, white, membranceous frill; asci wide, straight, or incurved; sporidia when young having a large nucleus in the centre, surrounded by a circle of smaller ones, then verrucose, and finally reticulated; paraphyses filamentous, simple, or forked, thickened at the apex, and much longer than the asci.—*Fckl. exs. no.* 1853. *Cooke exs. no.* 285. *Cooke Seem. J. Bot. May*, 1864, *f.* 3. *B. & Br. Ann. N.H. no.* 1085, *t.* 16, *f.* 26. *Ascobolus miniatus, Crouan (non Preuss), Ann. des. Sc. Nat.* 1858, *vol.* x. *p.* 197, *t.* 13, *f.* i. 44—47. *Crouania miniata, Fckl. Sym. Myc. p.* 320.

On the earth, amongst small mosses. Autumn.

Receptacle composed of round or oval cells, very small, closely packed, intermixed with articulated, hyaline, anastomosing, or confluent filaments; "sporidia when mature beautifully reticulated, like those of some truffles." *Boudier (Ann. Sc. Nat.* (1869), x. *p.* 257) says that this is not an *Ascobolus*, but a *Peziza (Humaria)*.

2199. Ascobolus jungermanniæ. *B. & Br.* "Verdigris Ascobolus."

Scattered, sessile, fleshy, smooth, deep verdigris-green; cups plane, marginate; asci slightly clavate; sporidia elliptic, intense verdigris-green; paraphyses clavate at the tips, greenish.

—*B. & Br. Ann. N.H. no.* 1082, *t.* 16, *f.* 23. *Peziza jungermanniæ*, *Nees. Fr. S.M.* ii. *p.* 144. *Pseudopeziza jungermanniæ*, *Fckl. Sym. Myc. p.* 291.

On *Jungermanniæ*. Jedburgh, and near Shere.

Asci slightly clavate, at length projecting; sporidia elliptic (·0006 in.) ·015 m.m. long, sometimes rather irregular, of an intense verdigris-green when fresh, as are also the clavate-tipped paraphyses.

B. *Stercoricoles*, Boud.

2200. Ascobolus furfuraceus. *Pers.* "Mealy Ascobolus."

Sessile, slightly concave, brown or greenish, externally furfuraceous; asci clavate, with an inner separable membrane; sporidia almond-shaped, biseriate, rugose, amethyst-purple.—*Pers. Obs.* i. *t.* 4, *f.* 3-6. *Fr. S.M.* ii. *p.* 163. *Grev. t.* 307. *Berk. Eng. Fl.* v. *p.* 209. *Outl. p.* 374. *Currey Linn. Trans.* xxiv. *t.* xxv. *f.* 9, 10. *Rav. exs.* vi. *no.* 81. *Fckl. exs. no.* 1132. *Cooke Seem. Journ. May*, 1864, *fig.* 1. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 6, *f.* 6-10. *Peziza stercoraria*, *Bull. t.* 376. 538, *f.* 4. *Sow. t.* 18, 389. *f.* 3-6. *P. fusca*, *Bolt. t.* 109, *f.* 2.

On cow dung, all the year. Very common. (*Fig.* 338.)
[United States.]

2201. Ascobolus vinosus. *B.* "Purplish Ascobolus."

Sessile, at first globose, then depressed, smooth, dull purple, orifice laciniate; asci nearly linear, thickest at their tips; sporidia elliptical, rugose, at first colourless, then purple, eventually brown.—*Berk. Eng. Fl.* v. *p.* 209. *Outl. p.* 374. *Cooke Seem. J. Bot. May*, 1864. *Berk. exs. no.* 159. *B. & Br. Ann. N.H. no.* 1083* *t.* 16, *f.* 25. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 6, *f.* 11. *Fckl. exs. no.* 1852.

On rabbit dung.

Sporidia ·0006-·0008 in.) ·015-·0177 m.m. long. Stylospores occur in this species occasionally at the tips of the paraphyses; cup 1 line broad, adhering by branched threads, at first globose, then nearly plane, opening with about five laciniæ, which, as it expands, are again divided.—*M.J.B.*

2202. Ascobolus ærugineus. *Fr.* "Dull-green Ascobolus."

Gregarious, sessile, nearly plane, marginate, smooth, greenish; asci clavate, attenuated downwards; sporidia elliptic, violet, or violet purple.—*Fries. Obs.* ii. *p.* 310. *Sys. Myc.* ii. *p.* 164. *Cooke*

Seem. J. Bot. May, 1864. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 7, *f.* 12. *A. marginatus, Schum. Saell.* ii. *p.* 437.

On horse-dung. August.

2203. Ascobolus glaber. *Pers.* "Smooth Ascobolus."

Sessile, minute, smooth, shining, somewhat convex, marginate, colour variable from white or orange to vinous-brown; asci nearly equal; sporidia at first hyaline, then amber-coloured, at length deep violet, reticulated.—*Pers. Obs.* i. *t.* 4, *f.* 7. *Syn. p.* 667. *Fr. S.M.* ii. *p.* 164. *Fckl. exs. no.* 1134. *Berk. Eng. Fl.* v. *p.* 209. *Outl. p.* 374. *Cooke Seem. J. Bot. May*, 1864, *fig.* 4. *B. & Br. Ann. N.H. no.* 1085*, *t.* 16, *f.* 27. *Boud. Ann. Sc. Nat.* (1869), x. *t.* 7, *f.* 13-15.

On cow dung and rabbits' dung. Autumn. Bathford and Ascot. [Mid. Carolina.]

Sporidia (·0005 in. broad, ·0009-·001 in long), ·0127 × ·022-·025 m.m.

2204. Ascobolus immersus. *Pers.* "Large-spored Ascobolus."

Very small, clear greenish-yellow, smooth, subcylindrical or hemispherical; hymenium flat; asci large and wide; sporidia very large, ovoid, surrounded by a wide, hyaline membrane, purple violet; paraphyses colourless, filiform.—*Pers. Obs. t.* 4, *f.* 7, *d. e. Boud. Ann. Sc. Nat.* (1869), x. *t.* 8, *f.* 17. *Nees. f.* 297. *A. macrosporus. Crouan Ann. des Sc. Nat.* 1857, *vol.* vii. *p.* 74, *t.* 4, 5, 8. *Cooke Seem. J. Bot. May*, 1864, *fig.* 7. *B. & Br. Ann. N.H. no.* 1089, *t.* 17, *f.* 33.

On old cow dung, and on sheep and horse dung. Autumn. Batheaston.

Receptacles small; the cells which compose it anastomose, and form a reticulated tissue.

"Mr. Currey observes that the amethyst-coloured epispore tears off in riband-like shreds."

Sporidia (·0025 in.) ·06-·065 m.m. long.

2205. Ascobolus brunneus. *Cooke.* "Brown Ascobolus."

Cups minute, globose, then depressed, sessile, externally pilose, pale ochre; asci broadly clavate, short; paraphyses filiform; sporidia elliptic, at first hyaline, and granular, at length brown.—*Cooke exs. no.* 286 (1867). *Hedwigia* vi. *p.* 154, not *A. brunneus. Boud. Ann. Sc. Nat.* (1869.)

On cow dung. Shere.

Sporidia (·001-·0015 in. long, ·0006 in. broad), ·025-·035 × ·015 m.m.

C. Saccobolus. *Boud.*

2206. Ascobolus Kerverni. *Crouan.* "Golden Ascobolus"

Very small, fine golden-yellow, sessile, hemispherical, sometimes subcylindrical; hymenium flat or convex; asci wide, incurved, spores elliptical, first white, then rosy, and finally of a beautiful violet, disposed at the summit of the ascus, in an oblong mass, enclosed in a hyaline membrane; paraphyses simple, filiform, a little thickened at their summit, and of a yellow colour. —*Crouan. Ann. des Sc. Nat.* 1858, *vol.* x. *p.* 193, *t.* 13, *f. B.* 7-11. *Fckl. exs. no.* 1836. *Cooke Seem. J. Bot. May*, 1864, *fig.* 8. *B. & Br. Ann. N.H. no.* 1090 *t.* 17, *f.* 34.

In small groups upon old cow dung. Oct. Bathford.

Receptacle composed of a thin filamentous tissue, anastomosing in a reticulated manner.

"The sporidia are dark violet when mature, and not reticulated. When young they nearly fill the ascus, but when mature are confined to a small space. When their proper envelope bursts, a number of minute globular bodies escape, apparently of a different character from the coarser ones which fill the space between the primary and secondary membranes when they are immature."—*B. & Br.*

2207. Ascobolus depauperatus. *B. & Br.* "Pallid Ascobolus."

Cups minute, plane, pallid, then vinous; asci short; sporidia obtusely fusiform, lurid violet, even; paraphyses slightly incrassated.—*B. & Br. Ann. N.H. no.* 1084, *t.* 14, *f.* 6.

On dung of sheep, horse, and deer. Bathford, &c.

Cups minute, not exceeding 1-100th in. diameter, yellowish when young, becoming vinous, but sometimes when old, losing their purplish tint; sporidia as in *A. vinosus* and some others, collected in a distinct sac, (·0004-·0005 in.) ·01-·0127 m.m. long, by (·00025 in.) ·0065 m.m. wide, which is only half the dimensions of those of *A. vinosus*, the cups of which, moreover, are many times as large.—*B. & Br.*

D. Ascophanus. *Boud.*

2208. Ascobolus granuliformis. *Crouan.* "Grain-like Ascobolus."

Sessile, sphærical, pale yellow-ochre, translucent, opaque in the centre, smooth; asci very small, wide; sporidia hyaline, oval; paraphyses colourless, thickened into a club-shape at their apex.—*Crouan. Ann. des Sc. Nat.* 1858, *vol.* x. *p.* 196, *t.* 13, *f.* 27-31. *Fckl. exs. no.* 1850. *Cooke Seem. J. Bot. May*, 1864, *fig.* 5.

B. & Br. Ann. N.H. no. 1086, *t.* 17, *f.* 31. *Ascophanus granuliformis. Boud. Ann. Sc. Nat.* (1869), x. *t.* 10, *f.* 31.

On cow dung. Oct. Nov. Common.

Receptacle formed by an anastomosing, reticulated filamentous tissue, of an extreme thinness; sporidia (·0004-·0005 in.) ·01-·0127 m.m. long (·0003 in.) ·0076 m.m. wide.

2209. Ascobolus microsporus. *B. & Br* "Small-spored Ascobolus."

Cups minute, whitish, depressed; asci elongated; sporidia elliptic, at length violet, even; paraphyses globose at the apex, filled with a greenish yellow endochrome.—*B. & Br. Ann. N.H.* (1865), *no.* 1087, *t.* 16, *f.* 28. *A. Cœmansii. Boud. Ann. Sc. Nat.* (1869), x. *t.* 10, *f.* 30.

On dung of cows and sheep. Batheaston.

Cups very minute, paler than in *A. granuliformis*, dirty-white or yellowish-brown; hymenium granulated with the tips of the asci, which are often furnished at the base with a little narrow oblique stem; sporidia (·0003 in.) ·0076 m.m. long, by (·00015 in.) ·0035 m.m. wide, quite smooth; tips of paraphyses filled with coloured endochrome, which makes them very conspicuous. This differs materially from *A. granuliformis* in the size of the fruit, which is proportionally narrower; the colour also is different.—*B. & Br.*

2210. Ascobolus argenteus. *Curr.* "Silvery Ascobolus."

Gregarious, exceedingly minute, barely visible to the naked eye, subpyriform, of a silvery-white colour; sporidia elliptical, colourless.—*F. Currey, in litt. Cooke Seem. J. Bot. May*, 1864, *fig.* 6. *B. & Br. Ann. N.H. no.* 1088, *t.* 17, *f.* 32. *Ascophanus argenteus, Boud. Ann. Sc. Nat.* (1869), x. *t.* 11, *f.* 32.

On cow-dung. Nov. Eltham.

Sporidia (·0005 in.) ·0127 m.m. long (·0003 in.) ·0076 m.m. wide.

2211. Ascobolus sexdecemsporus. *Crouan.* "Sixteen-spored Ascobolus."

White, then whitish-grey, at length of a clear yellowish-white, minute, sessile, hemispherical; hymenium flat or slightly convex; asci small, wide, enclosing sixteen, ovoid, hyaline spores; paraphyses numerous, colourless; simple or branched below, straight or curved at the apex, where they are a little thickened. —*Fckl. exs. no.* 1851. *Crouan, Ann. des Sc. Nat.* 1858, *vol.* x. *p.* 195, *t.* 13, *f. E.* 21-26. *Cooke Seem. J. Bot. May*, 1864, *fig.* 9. *B. & Br. Ann. N.H. no.* 1091, *t.* 17, *f.* 35. *Ascophanus sexdecemsporus, Boud. Ann. Sc. Nat.* (1869), x. *t.* 11, *f.* 35.

In marshes, on the droppings of cows and horses. Oct. Hanham, near Bristol.

Receptacle non-gelatinous, composed of very small hexagonal cells. Sporidia (·0006 in) ·015 m.m. long.

2212. Ascobolus cinereus. *Crouan.* "Grey Ascobolus."

Small, grey, sessile, smooth, hemispherical, or irregular; disc plane or a little convex; asci large, elavate, attenuated at their base; sporidia sub-cylindrical, colourless, paraphyses simple, filiform.—*Ann. Sc. Nat. ser.* iv. *vol.* x. *p.* 194, *f. D. B. & Br. Ann. N.H. no.* 1085, *t.* 17, *f.* 30. *Ascophanus cinereus, Boud. Ann. Sc. Nat.* (1869), x. *t.* 11, *f.* 37.

On cow-dung. Batheaston.

Sporidia (·0009 m.) ·022 m.m. long (·0004 in.) ·01 m.m. wide.

2213. Ascobolus carneus. *Pers.* "Flesh-coloured Ascobolus."

Gregarious, minute, sessile, plane, immarginate, smooth, flesh-coloured.—*Pers. Syn. p.* 676. *Fr. S.M.* ii. *p.*165. *Berk. Outl. Fung. p.* 374. *Fckl. exs. no.* 1857. *Cooke Seem. J. Bot. May*, 1864. *B. & Br. Ann. N.H. no.* 1085*, *t.* 17, *f.* 29. *Ascophanus carneus, Boud. Ann. Sc. Nat.* (1869), x. *t.* 12, *f.* 38.

On cow dung. Autumn.

"Asci in our specimens only ·0012 in. long. They are more than twice as long in *A. granuliformis*. Unfortunately we can find no perfect sporidia." —*B. & Br.*

2214. Ascobolus saccharinus. *B. & Curr.* "Sparkling Ascobolus."

Scattered or crowded; disc almost hemispherical when young, afterwards expanded and plane, of a reddish-pink, or salmon-colour, when dry paler towards the margin; plant attached at the base by white downy threads; hymenium somewhat glistening, looking as if sprinkled with minute particles of brown sugar; sporidia elliptical, colourless.—*B. & Curr. Berk. Outl. p.* 374. *Cooke Seem. J. Bot. May*, 1864, *fig.* 10. *B. & Br. Ann. N.H. no.* 1091*, *t.* 17. *f.* 36. *Ascophanus saccharinus, Boud. Ann. Sc. Nat.* (1869), x. *t.* 12. *f.* 40.

On old leather, and also on old rag. Chislehurst, Kent.

Sporidia (·0007-·0008 in), ·0177-·02 m.m. long.

2215. Ascobolus ciliatus. *Schm.* "Fringed Ascobolus."

Sessile, subhemispherical, smooth, orange; disc plane; margin swollen, white, fringed with white hairs; asci large; sporidia

broadly elliptic; dark-violet when mature.—*Schmidt, Myc. Hefte*, i. *p.* 90. *Pers. M.E.* i. *p.* 340. *Fr. S.M.* ii. *p.* 164. *Eng. Fl.* v. *p.* 209. *Berk. Outl. p.* 374. *Cooke Seem. J. Bot. May*, 1864. *B. & Br. Ann. N.H. no.* 1083*, *t.* 14, *f.* 7. *Ascophanus ciliatus, Boud. Ann. Sc. Nat.* (1869), x. *p.* 253.

On cow-dung. Autumn.

Extremely like *Peziza stercorea*, but the hairs are white. The asci are very large for the size of the plant, and are not altered by drying.—*M. J. B.*

2216. Ascobolus testaceus. *B. & Br.* "Brick red Ascobolus."

Gregarious, waxy, sessile, unequal, smooth, sub-depressed, brick-red; asci broadly cylindrical; sporidia elliptical; surface granular; paraphyses slightly thickened upwards, subclavate.—*B. & Br. Ann. N.H. no.* 1082*, *t.* 14, *f.* 5. *Helotium testaceum, Berk. Outl. p.* 372. *Peziza testacea, Moug. Fr. El.* ii. *p.* 11. *B. & Br. Ann. N.H. no.* 576.

Old sacking and rabbits' dung.

The asci project in good fresh specimens, and the habitat indicates an *Ascobolus* rather than an *Helotium*.—*B. & Br.*

Gen. **305.** **BULGARIA**, Fr.

Fig. 339.

Receptacle orbicular, then truncate, glutinous within, at first closed; hymenium even, persistent, smooth. —*Berk. Outl. p.* 374.

(Fig. 339.*)*

2217. Bulgaria inquinans. *Fr.* "Blackish Bulgaria."

Turbinate, firm, externally rugulose, furfuraceous, umber; disc becoming plane, black; asci long, obtuse; sporidia large, elliptic, brown. —*Fr. S.M.* ii. *p.* 167. *Tul. Ann. Sc. Nat.* xx. (1853), *t.* 15, *f.* 1-7. *Eng. Fl.* v. *p.* 209. *Cooke exs. no.* 324. *Fckl. exs. no.* 1136. *Rav. exs.* v. *no.* 43. *Fl. Dan. t.* 464. *Schæff. t.* 158. *Batsch. f.* 50. *Hedw. t.* 6, *f.* 5. *Berk. Outl. t.* 22, *f.* 7. *Pez. nigra, Bull. t.* 460, *f.* 1. *Sow. t.* 423. *Nees. f.* 296. *Pez. polymorpha, Light.* ii. *p.* 1003. *Hoff. Cr.* ii. *t.* 6, *f.* 2.

On oak trunks, &c. [United States.]

Tough, elastic, gelatinous, dark-brown, or chocolate, almost black, wrinkled, and rough externally; disc sometimes lacunose; stem in general blank, almost obsolete, sometimes fasciculate and confluent.—*M.J.B.* (*Fig.* 339.)

2218. Bulgaria sarcoides. *Fr.* "Purplish Bulgaria."

Stylospores—Cæspitose, soft, viscid, flesh-coloured, inclining to purple, at first club-shaped, then compressed, lobed, and plicate.—*Tremella sarcoides, Berk. Outl. t.* 2, *f.* 7. *Eng. Bot. t.* 2450. *Bolt. t.* 101, *f.* 2. *Bull t.* 499, *f.* 5. *Eng. Fl.* v. *p.* 217.

Ascophore—Cæspitose, polymorphous, rather firm, flesh-red, externally somewhat venose; disc concave; asci clavate; sporidia oblong-lanceolate, straight, or unequal, with a central nucleus. *Fr. S.M.* ii. *p.* 168. *Eng. Fl.* v. *p.* 240. *Berk. Outl. t.* 18, *f.* 6. *Bolt. t.* 101, *f.* 2. *Schæff. t.* 323, 324. *Hedw. t.* 7, *f. B. Berk. exs. no.* 273. *Batsch f.* 53. *Jacq. Misc. t.* 22. *Bull. t.* 101, *f.* 2. *Fl. Dan. t.* 1017, *f.* 1-2. *vars. Coryne sarcoides, Tul. Carp.* iii. *p.* 190, *t.* 17, *f.* 1-10.

On old stumps. [S. Carolina.]

Dr. Capron undoubtedly traced *Tremella sarcoides* through its stages to its perfection in this species, almost simultaneously and independently of the researches of M. Tulasne, which produced the same result. The *Tremella*, therefore, is an imperfect condition of the *Bulgaria*.

Gen. **306.** **AGYRIUM,** Fr.

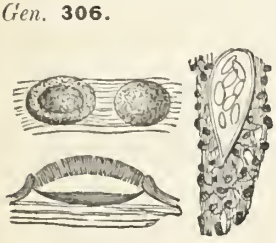


Fig. 340.

Receptacle compact, homogeneous, waxy, gelatinous when moist, innate, sessile, sphærical, even, smooth, fructifying all round; asci fixed.—*Berk. Outl. p.* 375. (*Fig.* 340.)

2219. Agyrium rufum. *Pers.* "Reddish Agyrium."

Gregarious, convex, or sphærical, compact when moist, flesh-coloured, when dry red-brown; asci ovoid; sporidia oblong, pellucid.—*Eng. Fl.* v. *p.* 220. *Fr. S.M.* ii. *p.* 232. *Fries. exs. no.* 280. *Grev. t.* 232. *Corda. Ic.* ii. *f.* 128. *Stictis rufa, Pers. Obs.* ii. *t.* 6, *f.* 6.

On old dry fir wood. [Up. Carolina.]

About ½ line broad, often seated on a whitish spot. It is very probable that this should be classed with lichens rather than fungi. (*Fig.* 340.)

Gen. **307.** **STICTIS**, Pers.

Fig. 341.

Receptacle obsolete; hymenium even, determinate, orbicular and elliptic, immersed in the matrix, at first veiled.—*Berk. Outl. p.* 375.

(*Fig.* 341.)

Hymenium persistent	. . . . .	*Eustictis.*
,,	deliqueseent	*Xylographa.*
,,	becoming dusty	*Propolis.*

2220. Stictis (Eustictis) radiata. *Pers.* "Radiated Stictis."

Immersed, orbicular, border snow-white, somewhat laccrated, pulverulent; sporidia linear, straight, continuous.—*Fr. S.M.* ii. *p.* 194. *Eng. Fl.* v. *p.* 213. *Rav. exs.* 1, *no.* 43. *Berk. exs. no.* 70. *Tode. t.* 7, *f.* 58. *Nees. f.* 294. *Hoffm. Lich. t.* 7, *f.* 4. *Grev. t.* 227. *Baxt. exs. no.* 80. *Sturm. t.* 61. *Peziza marginata, Sow. t.* 16.

On wood, twigs, &c. [United States.]

(*Fig.* 341.)

2221. Stictis (Eustictis) pallida. *Pers.* "Pallid Stictis."

Gregarious, immersed, punctiform, pallid; mouth connivent, subelliptic.—*Fr. S.M.* ii. *p.* 196. *Eng. Fl.* v. *p.* 213. *Pers. Obs.* ii. *t.* 6, *f.* 7.

On wood. Appin. [Mid. Carolina.]

Scattered, minute, elliptic, or subrotund, two individuals sometimes growing close together, and having a common partition, yellowish, surrounded by a narrow, spurious border of the same colour. The wood on which it grows is white.—*M.J.B.*

2222. Stictis (Eustictis) microstoma. *Carm.* "Small-mouthed Stictis."

Very minute, punctiform, prominent, blackish, opening with a minute, round, or subelliptic orifice; spores triseptate, hyaline, granular; paraphyses branched.—*Berk. Outl. p.* 375. *Stictis sicrostoma, Eng. Fl.* v. *p.* 213.

On wood.

Scattered, at first nearly white, with a minute orifice, round which it gradually assumes a darker hue, and at length under a high magnifier, appears, when moist, of a sub-olivaceous black. Resembling a minute *Sphæria*. —*M.J.B.*

Sporidia (·0007 in.) ·0177 m.m. long.

2223. Stictis (Eustictis) nivea. *Pers.* "Snowy Stictis."

Elliptic, very thin, white.—*Pers. M.E.p.* ii. 339. *Fr. S.M.* ii.*p.* 196. *Berk. Ann. N.H. no.* 167. *Desm. exs. no.* 763.

On *Pinus pinaster*. Milton, Norths.

2224. Stictis (Eustictis) lichenicola. *Mont.* "Lichen Stictis."

Erumpent, between fleshy and waxy, cupulæform; disc grey-black, nearly plane; margin obtuse, blackish, cinereous, cracking in a stellate manner; asci cylindrical; sporidia obovate or elliptical, with many nuclei, then septate, or fenestrate.—*Mont. Ann. Sc. Nat.* v. *p.* 281, *t.* 13, *f.* 3. *Berk. Ann. N.H. no.* 166.

On foliaceous *Cœnomyces*. Wareham. Isle of Skye.

"I am not at all sure that it is a true fungus. Its sporidia, as Montagne remarks, and my own observations confirm the fact, are exactly like those of *Urceolaria scruposa*."—*M.J.B.*

2225. Stictis (Eustictis) hysterioides. *Desm.* "Sedge Stictis."

Immersed, closed, hysteriform, then erumpent, prominent, open, ovate-oblong, or suborbicular; border brown-black, subgranulate; hymenium waxy, tawny, or rufous; asci cylindrical; sporidia oblong, obtuse, straight, hyaline, with four nuclei.—*Desm. Ann. Sc. Nat.* xix. (1843), *p.* 365. *B. & Br. Ann. N.H. no.* 314. *Berk. exs. no.* 308. *Propolis hysterioides, Fckl. Sym. Myc. p.* 255.

On *Carices*.

2226. Stictis (Eustictis) chrysophæa. *Fr.* "Golden-yellow Stictis."

Erumpent, orbicular; disc concave, reddish; border rather thickened, golden yellow; asci clavate; sporidia fusiform.—*Fr. S.M.* ii. *p.* 194. *B. & Br. Ann. N.H. no.* 966, *t.* 16, *f.* 19. *Pers. Ic. P. t.* 8, *f.* 1, 2.

On dead wych-elm. Batheaston.

Sporidia fusiform (·005 in.) ·127 m.m. long.

2227. Stictis lecanora. *Schm.* "Willow Stictis."

Erumpent, fleshy, tremellose, patellæform, tawny; margin somewhat lacerated, sprinkled with a whitish meal.—*Schm. & Kze. exs. no.* 174. *B. & Br. Ann. N.H.*(1866), *no.* 1172. *Fr. S.M* ii. *p.* 195.

On dead willow twigs. Jedburgh.

2228. Stictis (Xylographa) parallela. *Fr.* "Parallel Stictis."

Erumpent, striæform, at first closed, then open; disc reddish-brown, obliterating the margin, black when dry; sporidia ovate-clavate; hyaline, simple.—*Fr. S.M.* ii. *p.* 197. *Eng. Fl.* v. *p.* 213. *Xylographa parallela, Fckl. Sym. Myc. p.* 252.

On dead fir wood. [Low. Carolina.]

The habit is very much that of a *Hysterium*.

2229. Stictis (Xylographa) longa. *Fr.* "Long Stictis."

Scattered, immersed, surrounded by the prominent wood, very long, attenuated at either end, open throughout its length.—*Fr. Ind. Alph. p.* 105. *Eng. Fl.* v. *p.* 213.

On wood.

Very long, about 1½ line, black, livid within, half immersed in the wood, sometimes 2 or 3 specimens are confluent.—*Pers.*

Dr. Capron has found at Shere a *Stictis* allied to *S. parallela* and this species, with the habit of the former; the paraphyses are branched above, and the sporidia are long-elliptic, straight or curved, triseptate, ·0005-·0006 in. long.

2230. Stictis (Propolis) versicolor. *Fr.* "Many-coloured Stictis."

Immersed, sub-oblong, plane; margin spurious, laciniated; disc at length farinaceous; asci large; sporidia rather large, oblong, with two or more nuclei; paraphyses few, slender.—*Fr. S.M.* ii. *p.* 198. *Rav. exs.* ii. *no.* 53. *Fr. exs. no.* 276. *Fckl. exs. no.* 1109. *Cryptomyces versicolor, Eng. Fl.* v. *p.* 214.

var. a. **alba.** Disc white, at length blackish.—*A. & S. t.* 9, *f.* 7.

var. c. **viridis.** Disc verdigris-green, pulveraceous.—*Fr. S.M.* ii. *p.* 198.

On pales, sticks, &c. [United States.]

The hymenium resembles a small portion of a transverse slice of a cocoa-nut, which has been exposed for a short time to the air.—*M.J.B.*

2231. Stictis (Propolis) phacidioides. *Fr.* "Arbutus-leaf Stictis."

Hypophyllous, erumpent, breaking up the epidermis into five equal, acute teeth; disc convex, milk-white, pruinose.—*Fr. S.M.* ii. *p.* 198. *Berk. Ann. N.H. no.* 162.

On dead leaves of *Arbutus uva ursi.* Luberoy. Sutherlandshire.

STICTIS WAUCHII. *Berk. Outl. p.* 375. *Cryptomyces Wauchii, Grev. t.* 206. *Eng. Fl. v. p.* 214, is referred by Tulasne to *Rhytisma maximum.*

Gen. **308.** **ASCOMYCES,** M. & D.

Fig. 342.

Parasitic; receptacle none; asci forming a thin pulverulent stratum, mixed with moniliform threads. —*Berk. Outl. p.* 376.

This appears to be the lowest form under which *Discomycetes* can appear, the way being made for it by *Propolis.* In outward aspect it has little resemblance to more typical genera. *M.J.B.* (*Fig.* 342.)

2232. **Ascomyces bullatus.** *Berk.* "Blister Ascomyces."

Tufts punctiform, at length confluent, at first covered by the epidermis; sporidia ovate or elliptic, subgelatinous, hyaline.—*Berk. Outl. p.* 376, *t.* 1, *fig.* 9, *C. Oidium bullatum, B. Journ. Hort. Soc.* ix. *p.* 51, *with fig. Taphrina bullata, Tul. Ann. Sc. Nat. ser.* v. *vol.* v. *p.* 127.

On living pear leaves. (*Fig.* 342.)

Sporidia $\frac{1}{2500}$ in. long; asci ·015 ·025 m.m. long, ·01 m.m. thick.

2233. **Ascomyces deformans.** *Berk.* "Peach Ascomyces."

Hypophyllous, rendering the matrix here and there bullate, sprinkled with a white powder; asci short, cylindrical; sporidia elliptical, hyaline.—*Berk. Outl. p.* 376, *t.* i. *f.* 9 *a. b. Taphrina deformans, Tul. Ann. Sc. Nat. ser.* v. *vol.* v. *p.* 128. *Exoascus deformans, Fckl. Sym. Myc. p.* 252. *Fckl exs. no.* 2063 *and* 2275.

On peach leaves.

2234. **Ascomyces trientalis.** *Berk.* "Trientale Ascomyces."

Spots orbicular or irregular, arising from a reddish stratum. —*Berk. in litt. Berk. Out. p.* 376.

On leaves of *Trientalis Europæa.*

2235. **Ascomyces juglandis.** *Berk.* "Walnut Ascomyces."

Hypophyllous, effused, snow-white on the nerves of the leaves; sporidia ovoid, hyaline.—*Berk. Outl. p* 376. *Gymnosporium leucosporum, Mont. Syll. p.* 309.

On walnut leaves.

Order XXIX. TUBERACEI.

Subterranean. Hymenium waved and sinuate, often intricate and closely packed.

This differs from the Order vii. *Hypogæi*, in that the sporidia are contained in asci.

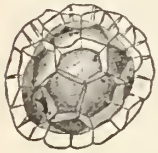
Sporidia more or less elliptic—
- Peridium rough. Asci saccate . . . . *Tuber.*
- Peridium warty. Hymenium lacunose . . *Balsamia.*
- Peridium warty, opening above. Asci cylindrical . . . . . *Genea.*

Sporidia globose—
- Integument smooth. Asci clavate . . . *Choiromyces.*
- Integument warty, opening above. Asci clavate . . . . . *Pachyphlœus.*
- Integument papillose. Asci oblong . . *Hydnotrya.*
- Integument cottony. Asci cylindrical . . *Stephensia.*
- Integument downy. Asci elliptic . . . *Hydnobolites.*
- Hymenium exposed. Asci linear . . . *Sphærosoma.*

Sporidia globose, with radiating threads, starchy—
- Peridium convolute. Asci saccate . . . *Amylocarpus.*

Sporidia concentric, at length dusty—
- Integument hard. Asci nearly globose . . *Elaphomyces.*

Gen. **309.** **TUBER,** Mich.



Figs. 343.

Asci short, saccate, disposed in sinuous veins; sporidia elliptic, reticulate, often echinulate; peridium warty or tubercled, rarely smooth, without any definite base.—*Myc. p.* 221. *Tul. Hyp. p.* 133. *Vitt. Tub. p.* 131. *Berk. Outl. p.* 376. (*Figs.* 343, 344 *sporidia.*)

Sect. A.—*Epispore alveolate.*

2236. **Tuber æstivum.** *Vitt.* "Common Truffle."

Rounded, irregular, large, 1-2 inches or more in diameter, black-brown, verrucose; warts large, polygonal, pyramidal, and transversely striate; veins very numerous, indistinct; flesh whitish, then clay coloured, or pale brown; asci 4-6 spored; spores elliptic, brown, reticulato-alveolate; alveoli few and broad.—*Vitt. Tub. p.* 38, *t.* 2, *f.* 4. *Tul. Hyp. t.* 7, *f.* 3. *Corda Icon.* vi. *t.* 18, *f.*

129. *Berk. Outl. p.* 376, *t.* 23, *f.* 2. *Cooke's B.F. t.* 23, *f.* 1. *Tuber cibarium*, *Sow. t.* 309. *Hussey. t.* 11. *Eng. Fl.* v. *p.* 228. *T. bohemicum*, *Corda. Ic.* vi. *T. albidum*, *Fr. Sys. Myc.*

In woods, especially of beech. Esculent.

From 1 to 3 inches in diameter, irregularly globose. The warts on the surface of the peridium large, four to six-sided, longitudinally and irregularly sulcate, the apex pierced or excavated and traversed chiefly about the crown with shallow parallel striæ. Sporidia ellipsoid, ·0256-·032 m.m. long, ·0224-·025 m.m. broad, pallid tawny-yellow; epispore faveolo-plicate.

2237. Tuber macrosporum. *Vitt.* "Large-spored Truffle."

Roundish; peridium clad with minute, irregular tubercles, covered with ferruginous spots and fissures; flesh compact; veins scattered, numerous and interrupted, and mixed with obscure lines; asci with long pedicels, 1-3 spored; sporidia elliptic, very large, brown; epispore alveolo-reticulate, reticulations small.—*Vitt. Tub. t.* i. *f.* 5. *Tul. Hyp. t.* 17, *f.* 8. *B. & Br. Ann. Nat. Hist. no.* 580. *Berk. Outl. p.* 376.

In woods. Near Bristol.

From the size of a filbert to that of a walnut, or larger, ferruginous black; flesh at first white, compact, veins dirty-white then pale-brown. Spores visible to the naked eye, ·055-·065 m.m. long, ·032-·039 m.m. broad. Odour strongly alliaceous.

2238. Tuber bituminatum. *B. & Br.* "Pitchy Truffle."

Black, globose, or ovate, regular; warts small and polyhedral, with a deep hole excavated at the base of the tuber; veins loosely coherent, for the most part originating from the margin of the basal hollow; asci oval, with long pedicels; sporidia brown, ovate, loosely cellulose.—*B. & Br. Ann. N.H. no.* 581. *Berk. Outl. p.* 376.

In deep sand. Oct. Bowood. Wilts.

"Closely allied to *T. æstivum*, *Vitt.* but easily distinguished by the odour; it differs also in the general form, being much more regular, and the warts smaller, and in the existence of a basal cavity prolonged into the substance of the fungus, which is thus very light compared with *T. æstivum*. The veins cohere very loosely, so that it is difficult to cut the plant in half without breaking it into frustules. It shrinks very much in drying. The sporangia have much longer stalks than in *T. æstivum*. The sporidia closely resemble those of that species, but are slightly longer compared with their width, and have somewhat shallower cells. It ranges from the size of a walnut to that of a hen's egg." Odour bituminous, and very strong of horse radish.—*M.J.B.*

2239. Tuber scleroneuron. *B. & Br.* "Hard Truffle."

Red-brown, cartilaginous, globose, lobate, minutely warted, or nearly smooth, rimose; veins irregular, broken, springing from the cracks in the peridium; cinereous towards the centre, red-brown at the circumference; sporidia red-brown, ovate, minutely cellulose; odour faintly aromatic.—*B. & Br. Ann. N.H. no.* 582. *Berk. Outl. p.* 376.

In the ground. Oct. Bowood.

"This species differs from *T. rufum*, *Vitt.* in its firmer cartilaginous texture, deep red-brown colour, in the form of its sporidia, which are ovate, not elliptic-elongate, and in its faint aromatic odour. The venation also is more broken and interrupted. *Tuber rufum*, *Vitt.* appears to be its nearest ally. When dried, *T. scleroneuron* becomes as hard as a piece of wood."

2240. Tuber excavatum. *Vitt.* "Hollowed Truffle."

Subglobose, about an inch in diameter; peridium discrete, ochraceous, minutely verrucose, firm; flesh horny, cinereous-red, liver-coloured, or tawny; veins pallid-ochraceous; the substance falls away in the centre, so as to leave a cavity, which has an opening at the base of the tuber; asci numerous, ellipsoid, 2-4 spored; sporidia ellipsoid, yellowish, or pallid-tawny; epispore largely faveolo-plicate.—*Vitt. Tub. t.* 1, *f.* 7. *Tul. Hyp. t.* 6, *f.* 1, *t.* 17, *f.* 5. *Smith Seem. Journ. Bot.* iii. *p.* 11, *t.* 30, *f.* 1-6. *Tuber fuscum*, *Corda. Icon.* i. *t.* 7, *f.* 298. *Vittadinion Montagnei*, *Zobel in Corda. Ic.* vi. *t.* 20, *f.* 142.

In woods. Rudloe, Bathcaston, Leigh Wood, and Somersetshire.

Spores ·023-·026 m.m. broad, ·032-·042 long.

Sect. B.—Epispore echinulate.

2241. Tuber brumale. *Mich.* "Winter Truffle."

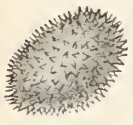


Fig. 344.

Tubers more or less regularly globose, black, rough with polygonal warts, at length smooth and naked; the mature flesh blackish-grey, marbled with white veins; asci numerous, with 4-6 spores; sporidia oblong-elliptic and echinulate, with rigid spines.—*Vitt. Tub. t.* 1, *f.* 6. *Tul. Hyp. t.* 7, *f.* 2, *t.* 17, *f.* 3. *B. & Br. Ann. N.H.* xviii. *p.* 80. *Berk. Outl.* 376. *Tuber brumale pulpa obscura odora*, *Mich. p.* 221, *t.* 102. *T. melanosporum*, *Berk. Ann. N.H. no.* 320.

On the ground. Oct.—Jan. Esculent.

When fresh the warts are of a bright brown showing in the interstices the pale tint of the inner substance; in drying the brown tint is entirely lost. Sporidia small, elliptic, ciliated, but not reticulated. Veins very broad, with narrow interstices. Spores ·026-·032 m.m long, ·019-·023 m.m. broad. Smell at length rather disagreeable. *(Fig. 344, sporidium.)*

2242. Tuber rufum. *Pico.* "Red Truffle."

Subglobose, or irregular, from a quarter of an inch to an inch in diameter; peridium thick, subcartilaginous, rimose, minutely verrucose, tawny ferruginous; flesh at first soft and whitish, at length reddish and firm, or horny; veins from whitish becoming livid, mixed with others that are tawny; asci obversely egg-shaped, 1-4 spored (generally 3); sporidia ellipsoid, tawny, studded with sharp points.—*Pico, p.* 80. *Vitt. Tub. t.* 1, *f.* 1. *Tul. Hyp. t.* 6, *f.* 2, *t.* 18, *f.* 2. *B. & Br. Ann. N.H. no.* 322. *Berk. Outl. p.* 376. *Tuber cinereum, Tul. Giorn. Bot. Ital.* ii. *p.* 62. *Oogaster rufus, Corda, Icon.* vi. *t.* 16, *f.* 123.

In woods. Rudloe, Wilts. Audley End, Essex.

The odour is said by Vittadini to be strong and nauseous. Variable in the colour of the peridium.
Spores ·029-·032 m.m. long, ·019-·024 m.m. broad.

2243. Tuber nitidum. *Vitt.* "Shining Truffle."

Globose or depressed; peridium thick, hard, smooth, shining, and pallid; flesh at first whitish, at length reddish-brown, hard; veins whitish, rather numerous, principally diverging from a whitish spot at the base; asci egg-shaped, containing from 1-4 spores; sporidia ellipsoid, reddish-yellow, densely echinulate; odour, when recent, nauseous.—*B. & Br. Ann. N.H. no.* 321. *Vitt, Tub. t.* 2, *f.* 10. *Berk. Outl. p.* 376. *Berk. exs. no.* 303. *Tul. Hyp. p.* 142. *Oogaster nitidus, Corda. Icon.* vi. *t.* 15, *f.* 117.

In the ground. Hanham. Rudloe. Spye Park.

In the young plant the asci are precisely of the form of those in *Cheiromyces meandriformis*, but with age they enlarge, and are at last obovate, as in *T. æstivum*. Distinguished from *T. rufum* by its smooth, pale peridium, and the veins springing from a distinct, generally single, basal point.
Spores ·026-·030 m.m. long, ·016-·023 m.m. broad.

2244. Tuber puberulum. *B. & Br.* "Downy Truffle."

Gregarious, irregularly sublobate, clothed with short, erect down, which gives it to the naked eye a peculiar pearly appearance; the white spots are very visible, even in dried specimens; peridium very thin and delicate, so that the pinky-brown colour

of the flesh is apparent through it, often cracked; veins white from a radiating base, in some individuals very few; sporidia nearly spherical, reticulato-echinulate; odour of the radish.—*B. & Br. Ann. N.H. Aug.* 1846. *Berk. Outl. p.* 376.

In sandy ground. Hanham, near Bristol, Chudleigh, Aspley, &c.

2245. Tuber dryophilum. *Tul.* "Wood Truffle."

Gregarious, with little odour, rounded, usually about the size of a nutmeg, nearly smooth, white, marked here and there with darker patches; the peridium is thick, hard, and tough, easily parting from the flesh, which is firm, reddish-brown, with white interstices, which are given off from different points of the surface; sporidia elliptic and coarsely reticulato-echinulate.—*Tul. Hyp. t.* 5, *f.* 3, *t.* 19, *f.* 8. *B. & Br. Ann. Nat. Hist. Aug.* 1846. *Berk. Outl. p.* 376.

In woods. Aug.—Oct. King's Cliffe, Chudleigh, Bristol, &c.

Spores ·023 m.m. long, ·016 m.m. broad, others ·038-·045 m.m. long, ·032-·035 m.m. broad.

Gen. **310. CHOIROMYCES,** Vitt.

Fig. 345.

Common integument even; base definite; asci clavate; sporidia spherical.—*Vitt. Tub. p.* 50. *Tul. Hyp. p.* 170. *Berk. Outl. p.* 377. *(Fig.* 345.)

2246. Choiromyces meandriformis. *Vitt.* "Veined Choiromyces."

Variable, globoso-mammose, even, pale chestnut colour; fissures broad, whitish brown, tesselated; base plicate, rugose; flesh white, when dry yellowish; veins numerous, meandering, ochraceous.—*Vitt. Tub. t.* 2, *f.* 1, *t. II, f.* 10. *Tul. Hyp. t.* 19, *f.* 7. *Corda. Ic.* vi. *t.* 13, *f.* 110. *B. & Br. Ann. N.H.* xviii. *p.* 80. *Tuber album, Sow. t.* 310. *Bull. t.* 404?

In the ground. Highgate, 1860.

Sometimes of considerable size; the specimen found at Highgate was not less than 4 inches in diameter, and certainly had a very strong odour. Sporidia spherical, echinulate, ·019-·022 m.m. diameter. *(Fig.* 345 *sporidium.)*

Gen. **311.** **AMYLOCARPUS,** *Curr.*

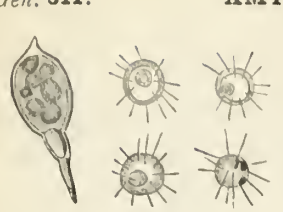


Fig. 346.

Common integument thick, convolute; asci soon absorbed, saccate; sporidia globose, clothed with radiating threads, amylaceous.—*Berk Outl. p.* 377. (*Fig.* 346.)

2247. **Amylocarpus encephaloides.** *Curr.* "Currey's Amylocarpus."

Small, globose, somewhat flattened, dull yellow, surface minutely convolute; asci broadly clavate; sporidia spherical, colourless, with long delicate sharp rays projecting in all directions.—*Curr. Proc. Roy. Soc.* (1857), *p.* 119, *with figs.*

Growing gregariously on fragments of wood, on the sands by the sea shore at Sketty, near Swansea.

Each individual presents the appearance of a small round somewhat flattened body, of a dull yellow colour, and with an unevenness of surface caused by numberless convolutions of the integument. The diameter of the largest did not much exceed $\frac{1}{4}$th in. Externally with a strong resemblance to *Dacrymyces deliquescens.* The integument is of considerable thickness formed of several layers of cells, the outer large and rounded, the inner long and flat. The asci are broadly clavate, with a very short stem springing from threads proceeding from the inner surface of the integument. They are absorbed at an early period, and the sporidia form a dense mass. Sporidia globular, colourless, furnished with long delicate sharp rays, projecting from the surface in every direction. Each sporidium with an internal nucleus, or oil drop. Spores $\frac{1}{2000}$th in. diameter.

(*Fig.* 346.)

Gen. **312.** **PACHYPHLŒUS,** Tul.

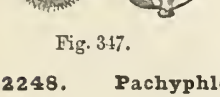


Fig. 347.

Common integument warty, opening by a terminal aperture; base distinct; asci clavate; sporidia spherical.—*Tul. Hyp. p.* 130. *Berk Outl. p.* 377. (*Fig.* 347.)

2248. **Pachyphlœus melanoxanthus.** *Tul.* "Black Pachyphlœus."

Globose, angular, verrucose—with a distinct absorbing base—black, internally olivaceous yellow, marbled with obscure lines,

and broad black veins.—*Tul. Hyp. t.* 4, *f.* 6, *t.* 14, *f.* 4. *Choiromyces melanoxanthus, Berk. Ann. N.H.* xiii. *p.* 359.

In oak or beech woods, often attached laterally to sticks, leaves, &c., without any connection with the ground. Oct. Bowood Park, Bristol, King's Cliffe, and Devonshire.

About the size of a horse bean, globose, but more or less compressed and angular, furnished with a distinct absorbent base; externally black, clothed with obtuse but not rigid warts, which are less manifest when the plant is dry. Flesh of a dirty olive yellow with broad black veins, which consist of a loose slightly branched tissue arising from hexagonal cells, the ends of the threads of which become oblong-elliptic, distinct, pedicellate asci, containing 8 dark, globose, echinulate, but not reticulate sporidia. Smell in some specimens like that of some agaric, in others strong and nauseous. The peridium is black in every stage of growth.—*M. J. B.* Spores ·013-·016 m.m. diameter. *(Fig.* 347 *sect. and sporidium.)*

2249. Pachyphlœus citrinus. *B. & Br.* "Lemon Pachyphlœus."

Subglobose, minutely warted, peridium brown, powdered with lemon-coloured particles; apex bright lemon-yellow, internally yellowish; interstices floccose, lemon-yellow, base rooting.—*B. & Br. Ann. N.H.* xviii. *p.* 79. *Tul. Hyp.* 132.

In woods. Near Bristol and in Wiltshire and Devonshire.

Very nearly allied to *P. melanoxanthus*, which is, however, black in every stage of growth, and has but little odour, whereas this is densely powdered with lemon coloured particles, and has a strong smell, like that of rotting sea weed. The orifice is generally more expanded, and is of a fine deep lemon yellow from the exposure of the interstices of the fructifying veins, and the peridium thin and brown frosted with yellow, when young of a uniform gamboge yellow. In *P. melanoxanthus* the veins are nearly black, with yellowish interstices, and the peridium thick, far more coarsely warted, more compressed, and irregular in form and always black.—*M.J.B.*

2250. Pachyphlœus conglomeratus. *B. & Br.* "Conglomerate Pachyphlœus."

Irregularly lobed and plicate, conglomerate, even; peridium rufous-brown, interstices of the lobes clothed with adpressed silky, yellow fibres.—*B. & Br. Ann. N.H.* xviii. *p.* 80. *Tul. Hyp. p.* 132.

In woods. Oct. Near Bristol.

About an inch in diamer, shortly stipitate, much lobed, and plicate as if made up of a number of individuals, the lobes rounded, of a deep brown-olive. Sometimes quite even, sometimes rather rough, but not the least verrucose, interstices of the lobes clothed with adpressed silky, yellow fibres. Asci clavate, irregular, containing eight globose, tuberculate sporidia. Sporidia larger than in the other species (·0192 m.m.), and differing in their appearance.—*M. J. B.*

Gen. **313.** **STEPHENSIA,** Tul.

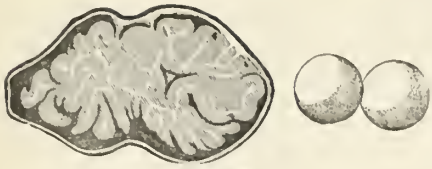


Fig. 348.

Common integument fleshy, cottony; base distinct; hymenium intricate; asci cylindrical; sporidia globose.—*Tul. Hyp. p.* 129. *Berk. Outl. p.* 377. (*Fig.* 348.)

2251. **Stephensia bombycina.** *Tul.* "Strong-scented Stephensia."

Subglobose, depressed; peridium rather soft, floccose, irregularly intruded into the cavity, destitute of rooting fibres; flesh gyroso-venose; sporidia pellucid, spherical.—*Tul. Hyp. t.* 12, *f.* 4. *Genea bombycina, Vitt. Tub. t.* 3, *f.* 13, *t.* 4, *f.* 8. *B. & Br. Ann. N.H.* xiii. *p.* 357.

Oct. Castle Combe, Chudleigh.

Peridium floccose, rather soft, dirty white, and so much intruded as sometimes to leave no cavity. The sporidia are globose, at first smooth, at length verrucose. With age they lose their transparency. The smell is very strong and disagreeable, resembling that of *Melanogaster ambiguus*. A small slice of it placed in a drop of water on the field of the microscope produced when dry a quantity of fine radiating crystals. Spores ·019-·022 m.m. diameter.—*M. J. B.* (*Fig.* 348 *sect. and sporidium.*)

Gen. **314.** **HYDNOTRYA,** B. & Br.

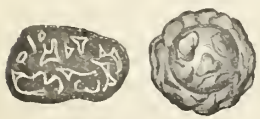


Fig. 349.

Common integument minutely papillose, not distinct; hymenium complicated with gyrose lacunæ, leading to the surface; asci oblong; sporidia globose, tuberculate.—*B. & Br. Ann. N.H.* xviii. *p.* 78. *Tul. Hyp. p.* 127. (*Fig.* 349.)

2252. **Hydnotrya Tulasnii.** *B. & Br.* "Tulasne's Hydnotrya."

Globose-depressed, base plicate, cribroso-porose, velvety rufous; cells large, walls pubescent, white; trama rufous; asci long; sporidia globose, at length reticulated, not echinulate.—*B. & Br. Ann. N.H.* xviii. *p.* 78. *Tul. Hyp. t.* 8, *f.* 2, *t.* 14, *f.* 3, *t.* 21. *Hydnobolites Tulasnei, Berk. Ann. N.H.* xiii. *p.* 357, *no.* 317. *Berk. exs. no.* 302.

In sandy ground. Aug. Spye Park, Wilts, and Chudleigh. Esculent.

Depresso-globose 1-2 in. or more in diameter, ferruginous with a tinge of vermillion, velvety, cribroso-porous at the base; cells irregular, large, especially in mature individuals, pubescent; substance rufous; asci oblong-elliptic, containing eight globose spores, reticulated but not echinulate; in the centre of each reticulation there is a single globule. Closely resembling *Balsamia vulgaris* when dry.—*M.J.B.* Spores ·035 m.m. diameter.
(*Fig.* 349 *sect. and sporidium.*)

Gen. **315.** **HYDNOBOLITES,** Tul.

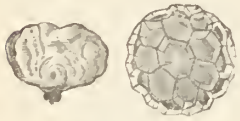


Fig. 350.

Integument replaced by white, evanescent down; hymenium complicated with sinuose lacunæ, ending at the surface; asci elliptic; sporidia globose.—*Tul. Hyp. p.* 126. *Berk. Outl. p.* 377.
(*Fig.* 350.)

2253. **Hydnobolites cerebriformis.** *Tul.* "Brain-like Hydnobolites."

The size of a filbert, firm, even, smooth, pallid yellow; asci elliptic; sporidia globose.—*Tul. Ann. Sc. Nat.* xix, *p.* 378. *Tul. Hyp. p.* 126, *t.* 4, *f.* 5, *t.* 14, *f.* 2. *B. & Br. Ann. N.H.* xviii. *p.* 8, *no.* 10. *Oogaster, Corda. Ic.* vi. *t.* 16, *f.* 121.

In woods. Aug. Sept. Bristol and Wilts.

A small species, resembling a small lacunose truffle, but differs in having no real peridium, as is the case also in *Hydnotria*. Sporidia 0192-0224 m.m.
(*Fig.* 350 *sect. and sporidium.*)

Gen. **316.** **SPHÆROSOMA,** Kl.

Fig. 351.

Common integument altogether wanting; hymenium exposed, even or rugose, solid or lacunose; asci linear; sporidia spherical.—*Tul. Hyp. p.* 184. *Berk. Outl. p.* 377.
(*Fig.* 351.)

2254. **Sphærosoma ostiolatum.** *Tul.* "Pierced Sphærosoma."

Globose, gibberoso-sinuate, ostiola apical, pervious, and more or less excavated, smooth, rather soft, brown; spores dark brown, tuberculate.—*Tul. Hyp. t.* 19, *f.* 1. *B. & Br. Ann. N.H.* xviii. *p.* 79.

Under leaves amongst loose mould. Near Bristol.

There is not the least trace of peridium in any stage of growth. A very curious circumstance sometimes occurs—that there is more than one stratum of hymenium. The asci are much shorter than the paraphyses. The adult plant is strongly plicate, and of a rich mulberry brown. Sporidia perfectly spherical, ·019-·023 m.m. diameter, with thick, elongated, obtuse unequal warts. (*Fig.* 351.)

Gen. **317.** **BALSAMIA**, Vitt.

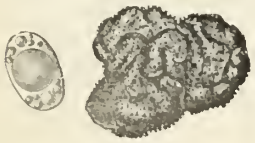


Fig. 352.

Common integument warty; hymenium complicated with distinct lacunæ not leading to the surface; sporidia cylindrical, or oblongo-elliptic, even, pellucid.—*Vitt. Tub. p.* 30. *Tul. Hyp. p.* 122. *Berk. Ann. N.H.* xiii. *p.* 358. *Berk. Outl. p.* 377. (*Fig.* 352.)

2255. **Balsamia platispora.** *B. & Br.* "Broad-spored Balsamia."

Small, globose, rufous, minutely warted, substance pallid yellow, minutely cellulose; sporidia at first broadly oblong-elliptic, with a large globose nucleus, at length slightly elongated trinucleate.—*B. & Br. Ann. Nat. Hist.* xiii. *p.* 358, *no.* 318. *Tul. Hyp. t.* 15, *f.* 2.

Oct.—Dec. Rudloe, Wilts.

About the size of a horse bean, rufous, with the interstices of the minute warts of a light yellow tint, from the exposure of the internal substance; cells minute; sporidia at first broadly oblong-elliptic with a large globose nucleus and a number of minute granules; in one specimen the sporidia were slightly elongated, with one large and two small nuclei. Smell strong. Sporidia ·0217 m.m. long, ·0129 m.m. broad. (*Fig.* 352.)

Gen. **318.** **GENEA**, Vitt.

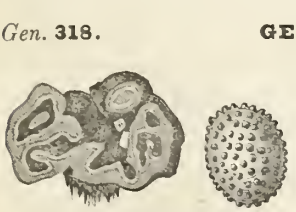


Fig. 353.

Common integument warty, with an aperture at the apex; hymenium waved and sinuated, but not forming an intricate mass; asci cylindrical; sporidia subglobose, or elliptical.—*Vitt. Tub. p.* 27. *Tul. Hyp. p.* 118. *Berk. Ann. N.H.* xiii. *p.* 356. *Berk. Outl. p.* 377. (*Fig.* 353.)

2255. Genea verrucosa. *Vitt.* "Warted Genea."

Very irregular and polymorphous, gibbous, sulcate, or also somewhat many-lobed, black, verrucose ostiolate; ostiola sometimes very broad, radical filaments abbreviated; sporidia broadly elliptic, verrucose.—*Tul. Hyp. t.* 4, *f.* 1, *t.* 12, *f.* 3. *t.* 13, *f.* 5. *Vitt. Tub. t.* ii. *f.* 7. *B. & Br. Ann. N.H.* xviii. *p.* 78. *G. papillosa, B. Ann. N.H.* xiii. *p.* 356.

In clayey soil. Bowood Park and King's Cliffe.

Variable in size from a pea to a small nut, globose, very irregular, often many-lobed, with the lobes rounded, externally black and verrucose, cinereous or dirty white within; sporangia linear-elongated, very obtuse; sporidia broadly elliptic, ·0256 m.m. broad, ·032 m.m. long, verrucose and whitish, warts very obtuse and unequal, nucleus oily. (*Fig.* 353.)

2257. Genea Klotschii. *B. & Br.* "Klotsch's Genea."

Fœtid, peridium subplicate, black without and within, verrucose, affixed below to rather rigid, brown, rooting fibrils; myœlium effuse, white, arachnoid and woven; sporidia large, tuberculate.—*B. & Br. Ann. N.H.* xviii. *p.* 78. *Berk. Outl. p.* 378. *Corda. Ic.* vi. *t.* 11, *f.* 101. *Tul. Hyp. t.* 13, *f.* 4.

On the soil. Bristol and Devonshire.

The myœlium spreads for some distance on or within the soil, so that the plant is easily detected when the leaves are raked off. This vanishes when the peridia are perfect. One or more individuals are found in each patch of myœlium. In the young peridium the point of attachment is lateral. The sporidia are large, coarsely granulated, and much exceeding in volume those of *G. verrucosa.*—*M. J. B.* Sporidia ·04-·05 m.m. diameter.

2258. Genea hispidula. *Berk.* "Hairy Genea."

Small, brown, externally invested everywhere with rather rigid, adpressed, brown flocci; interior cavity very often simple, with the mouth almost hidden; radical fibres brown, adhering to the base; sporidia large, ellipsoid; warts thick and crowded. —*G. papillosa, Berk. Ann. N.H.* xviii. *p.* 76. *Berk. Outl. p.* 378.

In the ground. Near Chudleigh, Aspley, Beds., and Bristol.

The whole peridium is of a rich brown, and is densely clothed with brown bristles wherever it extends. The sporidia are very much larger and far more coarsely granulated than in *G. verrucosa*, the granules, indeed, being often bifid; they often contain two nuclei, but sometimes there is but one. From the size of a pea to that of a filbert. Sporidia ·032 m.m. broad, ·038-·042 m.m. long; odour faint, not peculiar.

Gen. **319.** **ELAPHOMYCES,** Nees.

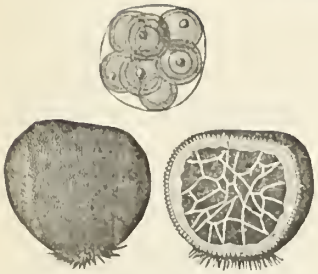


Fig. 354.

Common integument thick, hard; asci globose, or obovate: sporidia consisting of several concentric utricles; internal mass at length dusty. —*Tul. Hyp. p.* 100. *Berk. Eng. Fl.* v. *p.* 306. *Berk. Outl. p.* 378.

(*Fig.* 354.)

2259. **Elaphomyces anthracinus.** *Vitt.* "Smooth-coated Elaphomyces."

Globose, depressed in the centre, papillate, sometimes hollowed; mycelium dark brown; cortex black or brown, not spotted, nearly smooth, rigid, crustaceous; peridium thick, whitish; sporidia blackish-brown.—*Vitt. Tub. t.* 3, *f.* 8. *Tul. Hyp. t.* 19. *B. & Br. Ann. N.H.* xviii. *p.* 81.

In clayey soil. Near Bristol.

The original specimens of Vittadini are minutely granulated under a lens, a character which does not appear in our specimen. The sporidia are alike, and at once distinguish it from *E. variegatus*, the only species with which it can be confounded. The smell is very powerful, in which respect again it does not agree with Vittadini's species. It is, indeed, probable that it will prove new, but on the authority of a single individual, not in very good condition, it would be rash to do more than indicate its nearest affinity. The outer rind in the specimen when gathered was black, the inner of a dull yellowish-white.—*M.J.B.*

2260. **Elaphomyces variegatus.** *Vitt.* "Rough-coated Elaphomyces."

Mycelium yellow (or yellowish-grey), inconspicuous; cortex thick, hard, ochraceous-yellow or golden-yellow, rough, with thick pyramidal and obtuse, or narrow, pointed, and fragile warts, or only granulated; peridium reddish-brown and variegated; asci 2-4 spored; sporidia opaque, blackish-brown.—*Vitt. Tub. t.* 4, *f.* 4. *Sturm.* iii. 19-20, *t.* 9. *E. muricatus. Eng. Fl.* v. *p.* 307. *Corda. Ic.* vi. *t.* 10, *f.* 97. *Berk. exs. no.* 306.

In mountain woods, &c.

Differing from *E. granulatus* in its more muricated surface, less deep black, and smaller sporidia, but essentially in the substance of the coriaceous covering, being variegated with brown dots. Sporidia ·02-·022 m.m. diameter.

2261. Elaphomyces granulatus. *Fr.* "Granulated Elaphomyces."

Mycelium yellowish, soon vanishing; cortex yellow, at length tawny and brown, minutely papillate; papillæ adpressed, obtuse, or punctiform; peridium fragile, whitish, or reddish, when dry white; asci 1-8 spored; sporidia thick, rufous, or blackish purple.—*Fr. S.M.* iii. *p.* 58. *Vitt. Lycop. t.* 3, *f.* 7. *Tul. Hyp. t.* 19, *f.* 4. *Berk. exs. no.* 279. *Ann. Sc. Nat.* xvi. *t.* i. *f.* 3, *t.* 2, *f.* 7, *t.* 4, *f.* 3. *Sturm.* iii. 19-20, *t.* 8. *Eng. Fl.* v. *p.* 306. *Nees. f.* 147. *Berk. Ann. N.H. no.* 211, *t.* 11, *f.* 10.

In dry heathy ground. [Low. Carolina.]

The central substance when young is tender and juicy, and consists of filaments spotted with fertile patches. The filaments of the intersticcs are loose, and but little complicated, whereas those of the fructifying spots are more closely packed, short, and branched, their tips swelling, and gradually giving rise to large globose utricles, containing the sporidia. Sporidia ·025-·03 m.m. diameter. (*Fig.* 354.)

Order XXX. PHACIDIACEI.

Receptacle more or less coriaceous or carbonaceous; disc at length exposed by the regular or irregular fissure of the outer coat.—*Berk. Outl. p.* 379. *Intr. p.* 283.

The perithecia are elongated, sometimes branched, or, when circular, rather orbicular than spherical. In the linear species the form of the aperture depends upon the form of the perithecium, or excipulum, the margins of which are rounded. In other cases the disc is exposed by the mere fissure of the walls, as in *Phacidium*, and this fissure may either be simple or compound, radiating from a central point, and forming triangular lobes.—*Berk. Intr. p.* 283.

Perithecia bursting with valvular teeth	*Phacidium.*
Perithecia globoso-depressed, at length open	*Heterosphæria.*
Perithecia confluent, opening by flexuous fissures	*Rhytisma.*
Perithecia labiate, splitting from the centre	*Tribidium.*
Perithecia labiate, opening longitudinally	*Hysterium.*
Perithecia horny, sporidia united at the base	*Sporomega.*
Perithecia flexuose, lips divergent	*Colpoma.*
Perithecia linear, simple or branched, asci saciform	*Ailographum.*
Perithecia stellate	*Actidium.*
Perithecia stipitate, wedge shaped	*Lophium.*
Perithecia orbicular, with a deciduous operculum	*Stegia.*
Disc innate, erumpent	*Trochila.*

Gen. **320.** **PHACIDIUM,** Fr.

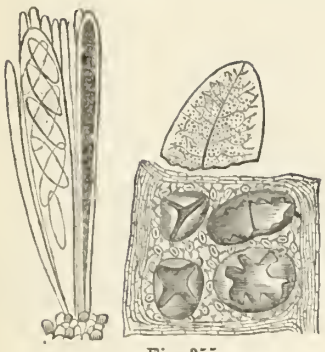


Fig. 355.

Perithecium bursting irregularly in the centre, by valvular teeth.—*Berk. Outl. p.* 379.

(*Fig.* 355.)

2262. Phacidium pini. *Schm.* "Scotch-fir Phacidium."

Erumpent, subrotund, truncato-discifonn, black; peritheeia with the laciniæ obtuse; disc dingy; sporidia colourless, very long, multiseptate, often with a filiform termination. — *Fr. S.M.* ii. *p.* 572. *A. & S. t.* 5, *f.* 8. *Linn. Trans.* xxiv. *t.* 25, *f.* 36. *Nees. f.* 399. *Schm. M.H.* i. *t.* 2, *f.* 11. *Fries exs. no.* 62. *Eng. Fl.* v. *p.* 292. *Tul. Carp.* iii. *p.* 136. *Fckl. exs. no.* 1095.

On bark of *Pinus sylvestris.*

Scattered, sub-innate, 1-2 lines broad, sometimes irregular, depressed, smooth, at first shining, then opaque, at length broken up; stratum under the disc softer, flesh white. "Sporidia colourless, very long, multiseptate, often tapering more at one end than the other, each extremity being extended into a filiform prolongation."

2263. Phacidium carbonaceum. *Fr.* "Black-powdered Phacidium."

Erumpent, subrotund, unequal, black, dehiscing into obtuse laciniæ; disc dry, blackish.—*Fr. S.M.* ii. *p.* 574. *Fries. exs. no.* 210. *Eng. Fl.* v. *p.* 292.

On twigs of willows. Spring.

Gregarious, at first covered with the epidermis, subinnate, convex, black, rather shining; then depressed, opaque; laciniæ unequal; disc black, as if powdered with charcoal.

2264. Phacidium vaccinii. *Fr.* "Bilberry Phacidium."

Spermogonia.—Spermatia simple, cylindrical, straight, obtuse.

Ascophore.—Erumpent, minute, convex, shining, rugose, splitting into four laciniæ; disc sooty-black; sporidia lanceo-

late, straight, simple, hyaline.—*Fr. S.M.* ii. *p.* 575. *Eng. Fl.* v. *p.* 292. *Fries. exs. no.* 289. *Sph. arbuti, Sow. t.* 370, *f.* 6.

On leaves of *Vaccinium Vitis Idæa* (and *Arbutus Uva ursi ?*)

2265. Phacidium coronatum. *Fr.* "Crowned Phacidium."

Innate, orbicular, hemispherical, depressed, blackish, splitting into many acute laciniæ; disc yellowish; paraphyses curved at the tips; sporidia colourless, cylindrical, curved at the ends; about eight times as long as broad, with 6 8 nuclei.—*Fr. S.M.* ii. *p.* 577. *Batsch. f.* 152. *Fckl. exs. no.* 1096. *Sow. t.* 118. *Fl. Dan. t.* 1380. *Pers. Ic. Pict. t.* 10, *f.* 1. *Berk. exs. no.* 195. *Sturm. t.* 63. *Fries. exs. no.* 163. *Schm. exs. no.* 82. *Moug. exs. no.* 559. *Eng. Fl.* v. *p.* 292. *Bolt. t.* 109, *f.* 1. *Grev. t.* 52. *Linn. Trans.* xxiv. *t.* 25, *f.* 7. *Mag. Zool. & Bot. no.* 58, *t.* 15, *f.* 5. *Tul. Carp.* iii. *p.* 134.

On fallen leaves of oak, &c. Common. [Mid. Carolina.]

"Disc variable in colour, sometimes circumscribed with a black line." Sporidia ·06-·08 m.m. (·0023-·003 in.) long.

2266. Phacidium dentatum. *Fr.* "Toothed Phacidium."

Spermogonia.—Spermatia minute, cylindrical, curved.

Ascophore.—Quadrate, seated on pallid spots, black, splitting into 4 or 5 acute laciniæ; disc dirty yellow; asci linear-oblong; sporidia filiform.—*Fr. S.M.* ii. *p.* 577. *Moug. exs. no.* 561. *Schm. exs. no.* 206. *Fckl. exs. no.* 1090. *Eng. Fl.* v. *p.* 292. *Corda.* iii. *f.* 81. *Ayres. exs. no.* 71. *Tul. Carp.* iii. *p.* 132. *Berk. exs. no.* 93.

On fallen oak leaves. Common. [Low. Carolina.]

Asci ·08 m.m. long.

2267. Phacidium minutissimum. *Awd.* "Minute Phacidium."

Hypophyllous, gregarious, minute, innate, rounded or angular, brown, soon splitting from the centre in 3-4 laciniæ, exposing the whitish disc; asci minute, clavate; sporidia oval, simple.—*Rabh. F.E. no.* 228. *Fckl. Sym. Myc. p.* 263. *Fckl. exs. no.* 1098.

On oak leaves. Shere. Dr. Capron.

2268. Phacidium abietinum. *Schm.* "Fir leaf Phacidium."

Erumpent, sub-rotund, convex, then depressed, black, splitting into 3-4 obtuse laciniæ; disc cinereous; asci stipitate, oblong-

ovate; sporidia oblong, minute.—*Kze. M.H.* i. *p.* 35. *Fr. S.M.* ii. *p.* 576. *Fckl. Sym. Myc. p.* 262.

On leaves of Scotch fir. (A. Jerdon.)

Orbicular or subovate ½-1 line broad, opaque, allied to *P. lacerum.*—*Fries.*

2269. Phacidium repandum. *Fr.* "Repand Phacidium."

Innate, subrotund, pallid-green, at length black, splitting into unequal obtuse laciniæ; disc dingy-brown; asci linear; spores oblong, minute.—*Fr. S.M.* ii. *p.* 578. *A. & S. t.* 14, *f.* 6. *Eng. Fl.* v. *p.* 293. *Cooke L.F. no.* 81. *Cooke exs. no.* 283.

On stems and leaves of various plants.

The habit, size, and general appearance is more like that of a *Peziza* or *Ascobolus* than a *Phacidium.* The plants on which it occurs (as *Asperula odorata* and *Sherardia*) are often still living when the parasite makes its appearance. Fuckel considers that three species are confounded together under *Phacidium repandum.* Fr.

2270. Phacidium trifolii. *Bond.* "Clover Phacidium."

Sessile, epiphyllous, minute, rather plane, smooth, pale yellow; sporidia elliptical, rather small, sometimes with a nucleus at each end.—*Boud. Ann. Sc. Nat.* (1869). x. *p.* 69. *Ascobolus Trifolii Biv.Bernh St. rar. t.* 6, *f.* 3. *Berk. exs. no.* 69. *Fr. S.M.* ii. *p.* 165. *Desm exs. no.* 520. *Berk. Eng. Fl.* v. *p.* 209. *Outl. p.* 374. *Cooke Seem. Journ. May* (1864). *Cooke exs. no.* 331. *Pseudopeziza trifolii, Fckl. Sym. Myc. p.* 290.

On living clover leaves. [Mid. Carolina.]

2271. Phacidium ranunculi. *Desm.* "Crowfoot Phacidium."

Hypophyllous, spots indeterminate, uniform, black, erumpent, subgregarious, unequal; sporidia pyriform, or obovate, with a septum towards the narrow end.—*Dothidea Ranunculi, Eng. Fl.* v. *p.* 287. *Fr. S.M.* ii. *p.* 562? *Cooke exs no.* 280. *Berk. exs. no.* 347.

On fading leaves of *Ranunculus repens,* &c.

The asci and sporidia are large for the size of the plant.

2272. Phacidium ilicis. *Fries.* "Holly Phacidium."

Stylospores. Stroma containing 3-5 cells, orbicular, plane, black, shining, penetrating the matrix, splitting into 3-5 plane, short laciniæ.—*Ceuthospora phacidioides, Grev. t.* 253. *Eng. Fl.* v. *p.* 283. *Moug. exs. no.* 560. *D.C. Mem. Mus.* ii. *t.* 3, *f.* 8.

var. b. **pulveracea.** Disc pulverulent; cells sub-triangular, circinating; spores white.—*Desm. exs. no.* 1626. *B. & Br. Ann.*

N.H. no. 427* *Cytispora foliicola. Lib. exs.* no. 64. *C. pulveracea, Eng. Fl.* v. *p.* 283.

Ascophore.—Sub-innate, convex, black, dehiscing in 3-5 laciniæ: disc whitish: asci clavate: sporidia minute, sausage shaped.—*Fries. Beitr. t.* 8. *f.* 17-21. *Tul. Carp.* iii. *p.* 128. *P. multivalve. Fr. S.M.* ii. *p.* 576. *Sph. bifrons, Sow. t.* 316. *S. Hedera, Nees. f.* 53.

On dead holly leaves. Scotland (*A. J.*).

2273. Phacidium simulatum. *B. & Br.* "Mint Phacidium."

Erumpent, cup-shaped, margin irregular: disc linear, red-brown: sporidia obovate, binucleate.—*B. & Br. Ann. N.H.* no. 967. *t.* 16. *f.* 20.

On dead stems of *Clinopodium*. Langridge, Somerset.

Linear but cup-shaped, erumpent with an irregular margin; disc linear, red-brown; asci clavate; sporidia obovate (·0004 inch), ·01 m.m. long binucleate.

2274. Phacidium rubi. *Fr.* "Bramble Phacidium."

Innate, roundish, hemispherical or plane, rugulose, black: splitting into obtuse, unequal laciniæ; disc whitish; paraphyses curved at the tips; sporidia linear, rounded at the ends with 6-8 nuclei.—*Fr. S.M.* ii. *p.* 578. *Fries. exs.* no. 36. *B. & Br. Ann. N.H.* no. 386.

On dead bramble stems. Spring.

Gen. 321. **HETEROSPHÆRIA,** Grev.

Fig. 356.

Perithecium globoso-depressed, thin, black, at length open above, and irregularly torn: disc thick, placentæform.—*Berk. Outl. p.* 379.

(*Fig.* 356.)

2275. Heterosphæria patella. *Grev.* "Depressed Heterosphæria."

Erumpent, sessile, free, at first more or less olivaceous, at length black, even; disc depressed, rarely open, dirty white, and then crowned with a toothed border; sporidia biseriate, oval, elongate, slightly

curved, mostly uniseptate, when quite mature triseptate.—*Grev. t.* 103. *Fr. El.* ii. *p.* 133. *Fries. exs. no.* 369. *Cooke exs. no.* 276. *Moug. exs. no.* 485. *Baxt. exs. no.* 30. *Tode. f.* 121. *Fckl. exs. no.* 1117. *Phacidium patella, Eng. Fl.* v. *p.* 291. *Berk. exs. no.* 289.

On dead stems of herbaceous plants. Spring.

Sporidia (·0007 in.), ·0177 m.m. long. Seldom found with perfect fruit. (*Fig.* 356.)

Gen. **322.** **RHYTISMA,** Fr.

Fig. 357.

Perithecia forming a confluent mass, opening by flexuous fissures. —*Berk. Outl. p.* 379. (*Fig.* 357.)

2276. Rhytisma maximum. *Fr.* "Great Rhytisma.'

Subinnate, very broad, even lobed at the circumference, bursting in fragments, stratum under the disc white; sporidia ovate, uniseriate.—*Fr. S.M.* ii. *p.* 566. *Eng. Fl.* v. *p.* 290. *Tul. Carp.* iii. *p.* 122, *t.* xvi. *f.* 9-15. *Fries. exs. no.* 250. *Sph. aurea, Sow. t.* 356.

On willow branches.

Forming bullate black patches on the young branches, adnate with the epidermis, shining in the centre dull towards the lobed margin; lobes rounded, with or without a golden yellow border, sometimes confluent and extending several inches. Sporidia ·002-·0026 m.m. long, ·01-·13 m.m. broad. *Cryptomyces Wauchii*, Grev. t. 206. Eng. Fl. v.p. 214. *Stictis Wauchii*, Bork. Outl. p. 375, is referred by Tulasne to this species.

2277. Rhytisma andromedæ. *Fr.* "Andromeda Rhytisma."

Innate, oblong, ecstato-rugose, shining; disc dingy cinereous-brown.—*Fr. S.M.* ii. *p.* 566. *Sturm. t.* 46. *Mem. Mus.* iii. *t.* 3, *f.* 13. *Fries. exs. no.* 135. *Moug. exs. no.* 176. *Eng. Fl.* v. *p.* 290.

On living leaves of *Andromeda polifolia.*

"Resembling pitch poured upon the leaves."

2278. Rhytisma salicinum. *Fr.* "Willow Rhytisma."

Innate, thick, tuberculose, black, somewhat shining, bursting in scales; disc yellowish, straw-colour, white within; asci linear-clavate; sporidia filiform or lanceolate, straight or curved—*Fr.*

S.M. ii. *p.* 568. *Grev. t.* 118, *f.* 2. *Mem. Mus.* iii. *t.* 3, *f.* 5. *Nees. f.* 20. *Pers. Disp. t.* 2, *f.* 4. *Schm. exs. no.* 37. *Moug. exs. no.* 175. *Eng. Fl.* v. *p.* 290. *Tul. Carp.* iii. *p.* 119, *t.* 15, *f.* 13-22- *Fckl. exs. no.* 1084, 1085. *Berk. exs. no.* 43.

On willow leaves. Common. [Low. Carolina.]

The plant does not appear with an open disc until the spring, the dead leaves having laid on the ground through the winter, when, as in the next species, the fruit is matured; sporidia ·1 m.m. long. (*Fig.* 357.)

2279. Rhytisma acerinum. *Fr.* "Maple Rhytisma."

Spermogonia.—Epiphyllous, scattered or confluent, forming black, suborbicular pustular spots, encircled with a discoloured zone; spermatia cylindrical, linear, hyaline, straight or curved, ·0065 m.m. long.—*Melasmia acerina*, *Lev. Ann. Sc. Nat.* 1846, *p.* 276. *B. & Br. Ann. N.H. no.* 443.

Ascophore.—Innate, spots irregular, confluent, rugose, bursting by flexuose labiate fissures; disc growing pale; asci obovate-lanceolate; sporidia filiform-lanceolate, flexuose.—*Fr. S.M.* ii. *p.* 569. *Bull. t.* 504, *f.* 13. *Berk. exs. no.* 194. *Cooke exs. no.* 181. *Nees. f.* 21. *Mem. Mus.* iii. *t.* 3, *f.* 9. *Grev. t.* 118, *f.* 1. *Schm. exs. no.* 105. *Moug. exs. no.* 77. *Eng. Fl.* v. *p.* 290. *Tul. Carp.* iii. *p.* 117, *t.* xv. *f.* 9-12. *Fckl. exs. no.* 1082.

On sycamore and maple leaves. Common. [United States.]

Sporidia ·08 m.m. long.

2280. Rhytisma punctatum. *Fr.* "Punctate Rhytisma."

Innate, crowded, angular or roundish, rugose, shining black, bursting in little fragments, internally brownish-black; sporidia linear, the length of the aseus, hyaline.—*Fr. S.M.* ii. *p.* 569. *Mem. Mus.* iii. *t.* 3, *f.* 4. *Eng. Fl.* v. *p.* 291. *Moug. exs. no.* 477.

On sycamore leaves. [Mid. Carolina.]

It is doubtful whether this is really distinct from the foregoing. I think not, but never having met with perfect fruit it is inserted.

2281. Rhytisma urticæ. *Fr.* "Nettle Rhytisma."

Innate, cohering in an elongated, ambient crust, tubercles slightly prominent, even, bursting by a slightly flexuous fissure; sporidia filiform, the length of the aseus.—*Fr. S.M.* ii. *p.* 570. *Eng. Fl.* v. *p.* 291. *Fries. exs. no.* 209. *Moug. exs. no.* 865. *Fckl. exs. no.* 1089. *Cooke exs. no.* 392.

On nettle stems. Winter and spring.

Gen. **323.** **TRIBLIDIUM,** Reb.

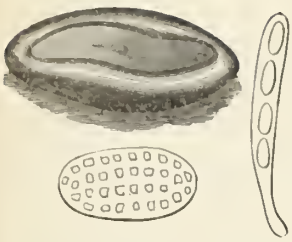


Fig. 358.

Peritheeium labiate, splitting from the centre towards the circumferenee.—*Berk. Outl. p.* 379. (*Fig.* 358.)

2282. Triblidium caliciiforme. *Reb.* "Solitary Triblidium."

Solitary, sub-sessile, globoso-depressed, rugoso-verrucose from minute cracks, opaque, black, bursting with obtuse laciniæ; disc pallid; asci cylindrical, tetrasporous; sporidia broadly elliptical, fenestrate.—*Fr. S.M.* ii. *p.* 183. *Pers. M.E.* i. *t.* 2, *f.* 3, 4. *Fckl. exs. no.* 1101. *B. & Br. Ann. N.H. no.* 775. *Chev. t.* 8, *f.* 9. *Phacidium caliciiforme, Eng. Fl.* v. *p.* 291.

On branches of lime and oak. [Mid. Carolina.]

Sporidia variable in length, sometimes (·002 in.) ·05 m.m. (*Fig.* 358.)

Gen. **324.** **HYSTERIUM,** Tode.

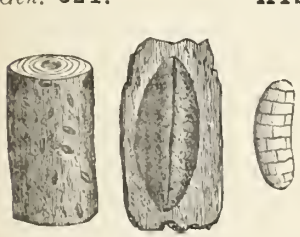


Fig. 359.

Peritheeium labiate, border entire; orifice narrow, linear; asci elongated.—*Berk. Outl. p.* 380. *Fr. S.M.* ii. *p.* 579. (*Fig.* 359.)

Sub-Gen. a. GENUINÆ.

Sporidia ovoid or ellipsoid, tri- or multi-septate, or muriform, mostly coloured.

2283. Hysterium pulicare. *Pers.* "Common Hysterium."

Superficial, elliptic or oblong, longitudinally striate, black; lips obtuse; disc linear; asci clavate; paraphyses filiform; sporidia oblong, trisceptate, brown, the terminal joints soon hyaline.—*Duby. Hist. p.* 25. *Fr. S.M.* ii. *p.* 579. *Mich. t.* 54, *f.* 2.

Nees. f. 302. *Moug. exs. no.* 266. *Grev. t.* 167, *f.* 1. *Eng. Fl.* v. *p.* 293. *Corda.* v. *f.* 61. *Desm. exs. no.* 779. *Fckl. exs. no.* 749.

On trunks of trees. Common. [United States.]

The sporidia are at first uniseptate and hyaline, but ultimately become triseptate and brown. Sporidia (·00075-·0009 in.) ·018-·022 m.m.

2284. Hysterium angustatum. *A. & S.* "Narrow Hysterium."

Superficial, elongated, linear, nearly smooth, black, opaque; asci cylindrico-clavate; sporidia oblong, triseptate, brown.—*A. & S. Consp. no.* 158. *Rabh. exs. no.* 720.

On twigs, bark, wood, &c.

This species is evidently as common as *H. pulicare*, from which the sporidia differ in being considerably smaller (·0004-·0005 in.) ·01-·0125 m.m., with the terminal joints coloured. The sporidia in *H. pulicare* are ·00025 in. broad, whilst in this species not more than ·00015 in.

2285. Hysterium repandum. *Blox.* "Repand Hysterium."

Perithecia almost free, elliptic; the lips well rounded; aperture gaping; asci rather short; sporidia broadly cymbiform, brown, the apex at one end very slightly elongated and hyaline. —*Duby Hyst. p.* 27, *t.* 1, *f.* 6. *B. & Br. Ann. N.H.* (1866), *no.* 1181, *t.* 5, *f.* 38.

On rotten stumps. Twycross.

Sporidia (·0006-·0007 in.) ·015-·0177 m.m. long.

2286. Hysterium varium. *Fr.* "Variable Hysterium."

Scattered over pallid spots; perithecia elliptic, subimmersed, with a slight keel, and very obscure aperture, quite even; asci elongated; sporidia uniseriate, elliptic, slightly pointed at either end, uniseptate, nucleate.—*Fr. S.M.* ii. *p.* 582. *Duby Hyst. p.* 28. *B. & Br. Ann. N.H.* (1866), *no.* 1180, *t.* 5, *f.* 37.

On decorticated branches of yew. April. Wynd Cliff.

Sporidia, with a large nucleus in each division (·001 in), ·025 m.m. long, by (·0005 in.) ·0127 m.m. broad. At first hyaline, at length pale brown.

2287. Hysterium Rousselii. *De Not.* "Roussel's Hysterium."

Erumpent, oblong or linear, obtuse, parallel, or irregularly disposed, black, opaque, longitudinally striate; asci subcylindrical; sporidia oblong, more or less constricted in the middle, 3-5 septate, fenestrate, hyaline, then more or less brownish.—*Duby.*

Hyst. p. 28, *t.* i. *f.* 7. *Moug. exs. no.* 1184. *Desm. exs. no.* 184. *Fckl. exs. no.* 751.

On twigs. [N. America.]

Probably not uncommon. It has been collected by F. Currey, Esq., and Dr. Capron.

2288. Hysterium elongatum. *Wahl.* "Elongated Hysterium."

Superficial, oblong, straight, nearly even, opaque, black; lips swollen; disc linear; asci broadly clavate; paraphyses filiform; apices clavulate; spores biseriate, ovato-oblong 8-9 septate, at length dark-brown.—*Fr. S.M.* ii. *p.* 581. *Berk. Outl. p* 380. *Duby Hyst. p.* 29, *t.* 1, *f.* 9. *Corda. t.* 9, *f.* 62. *Eng. Fl.* v. *p.* 293. *Fckl. exs. no.* 1754.

On decorticated wood, and rose stems. [S. Carolina.]

The sporidia are very fine.

2289. Hysterium fraxini. *Pers.* "Ash Hysterium."

Erumpent, elliptic, hard, black; lips swollen, even; disc linear; asci broad, clavate; paraphyses filiform; sporidia large, oblong, at first pale, then intense olive-brown, at first uniseptate, at length transversely and longitudinally multiseptate (muriform).—*Duby Hyst. p.* 29. *Fr. S.M.* ii. *p.* 585. *Fckl. exs. no.* 747. *Desm. exs. no.* 83. *Rabh. exs. no.* 167. *Letell. t.* 651, *f.* 2. *Cooke exs. no.* 398. *Moug. exs. no.* 267. *Grev. t.* 72. *Pers. Syn. t.* 2, *f.* 5-8. *Baxt. exs. no.* 33. *Eng. Fl.* v. *p.* 294. *Sphæria sulcata, Bolt. t.* 124. *Sow. t.* 315.

On small ash branches. Common. [Low. Carolina.]
(*Fig.* 359.)

2290. Hysterium curvatum. *Fr.* "Curved Hysterium."

Erumpent, then superficial, prominent, aggregate, linear, elongated, flexuose or incurved, black, shining, whitish within; lips rather swollen, connivent, longitudinally striate, mouth linear; asci clavate, or somewhat cylindrical; paraphyses filiform, thickened at the apex; sporidia ellipsoid, hyaline, multi-nucleate, at length fenestrate.—*Fr. El.* ii. *p.* 138. *Duby Hyst.* 31. *B. & Br. Ann. N.H. no.* 587. *H. elongatum*, β. *Fr. El.* ii. *p.* 138.

On branches of sloe, rose and bramble.

Sporidia (·0005-·0006 in.), ·0125-·015 m.m. long, by (·00015 in.) ·0035 m.m. broad.

2291. Hysterium Carmichaelianum. *Berk.* "Carmichael's Hysterium."

Superficial, substipitate, short, linear, or subelliptic, black, opaque, not even; lips obtuse, inflexed; asci and sporidia?—*Berk. Eng. Fl.* v. *p.* 294. *Hysterium varium, Grev. t.* 233.

On smooth oak bark. Appin.

This species rests entirely upon Greville's figure, and must be regarded as doubtful. Dr. Curtis quotes it as found on bark of *Liquidambar* in Lower Carolina.

Sub-Gen. b. Glonium.

Sporidia bilocular, hyaline.

2292. Hysterium (Glonium) lineare. *Fr.* "Linear Glonium."

Subimmersed, crowded, parallel, linear, black; lips slightly swollen, even; disc linear; asci clavate or clavato-cylindrical; sporidia ovoid, hyaline, rarely subconstricted in the middle.—*Fr. S.M.* ii. *p.* 583. *Nees. f.* 303. *Moug. exs. no.* 563. *Grev. t.* 167, *f.* 2. *Eng. Fl.* v. *p.* 294. *Glonium lineare, Duby Hyst. p.* 35.

On wood. [United States.]

2293. Hysterium (Glonium) amplum. *Duby.* "Broad Glonium."

Perithecia congregated together, or crowded, subdepressed, furcate and branched; asci elongato-clavate; sporidia biscriate, uniseptate, not constricted, hyaline.—*Duby Hyst. p.* 37. *Ailographum amplum, B. & Br. Ann. N.H. no.* 782.

On decaying stems of *Rubi.* Twyeross.

Sub-Gen. c. Hypoderma.

Asci clavate, attenuated below; sporidia cylindrical, curved (sausage-shaped), hyaline, rarely septate.

2294. Hysterium (Hypoderma) ilicinum. *De Not.* "Oak-leaf Hysterium."

Epiphyllous, scattered, elliptic, obtuse, grey-black, about twice as long as broad; lips convex, tumid, at first connivent, then divergent; disc whitish; asci clavate, pedicellate; sporidea linear-cylindrical, somewhat curved, obtuse, hyaline 2-4 celled.—*Duby*

Hyst. p. 40. *H. foliicolum*, γ. *maculare Berk. Eng. Fl.* v. *p.* 296. *Berk. exs. no.* 95. *H. maculare, Grev. t.* 129, *f.* 2.

On dry oak leaves. [Low. Carolina?]

2295. Hysterium (Hypoderma) virgultorum. *D.C.* "Twig Hysterium."

Subinnate, longitudinally placed, elongated, acute, even, shining, black, at length gaping, internally grey; asci clavate, obtuse, longly pedicellate; paraphyses filiform; sporidia hyaline, linear-ellipsoid, obtuse at both ends.—*Hyst. Rubi, Fr. S.M.* ii. *p.* 587. *Eng. Fl.* v. *p.* 295. *Schm. exs. no.* 30. *Moug. exs. no.* 564. *Grev. t.* 24. *Lib. exs. no.* 177. *Desm. exs.* ii. *no.* 172-178. *Tul. Ann. Sc. Nat.* 3, *ser.* xx. *t.* 15, *f.* 10-14. *Fckl. exs. no.* 757.

On dead stems of bramble. [United States.]

2296. Hysterium (Hypoderma) commune. *Fr.* "Common Hysterium."

Spermogonia.—Simple, subrotund, variable, rugulose, shining, at length seceding; spermatia simple, minute.—*Leptostroma vulgare, Fr. S.M.* ii. *p.* 599. *B. & Br. Ann. N.H. no.* 205. *Moug. exs. no.* 674. *Fckl. exs. no.* 197. *Tul. Ann. Sc. Nat.* iii. *t.* 20, *p.* 155.

Ascophore.—Innate, oblong, obtuse, opaque, black; lips subrugose, fragile; disc dingy; asci more or less elongated from the base, ovato-clavate; sporidia hyaline, linear, obtuse; paraphyses filiform, flexuose, short.—*Fr. S.M.* ii. *p.* 589. *Letell. t.* 650, *f.* 5. *Rabh. exs.* ii. *no.* 576. *B. & Br. Ann. N.H. no.* 588. *Fckl. exs. no.* 755.

On dead stems of herbaceous plants. [United States.]

2297. Hysterium (Hypoderma) hederæ. *De Not.* "Ivy Hysterium."

Amphigenous, scattered, innato-superficial, elliptico-ovate, black, shining; lips acute at the edge, at first tumid, connivent, at length depressed; disc brown-black; asci clavate; paraphyses ickened at the apex; sporidia oblong-ovoid, straight, hyaline.—*Duby Hyst. p.* 42. *H. Hederæ, Corda* v. *t.* 9, *f.* 5. *Rabh. exs. no.* 1951. *Desm. exs.* ii. *no.* 180. *H. foliicolum*, β. *Hederæ Fr. Eng. Fl.* v. *p.* 294. *Moug. exs. no.* 1075. *Lib. exs. no.* 72. *Grev. t.* 129, *f.* 1. *Fckl. exs. no.* 756.

On ivy leaves.

Often seated on a pale spot.

2298. Hysterium (Hypoderma) conigenum. *Fr.* "Fir-cone Hysterium."

Erumpent, small, punctiform, shining, bursting by a longitudinal fissure; asci clavate; sporidia cylindrical, obtuse, straight, or curved.—*Fr. S.M.* ii. *p.* 586. *Moug. exs. no.* 75. *Eng. Fl.* v. *p.* 294.

On fallen cones of Scotch fir. Shere. *(E.C.)*

"Confined to the upper and exposed part of the scales."
Excluded by Duby (Hyst. p. 52) as not belonging to the *Hysteriacea*, but evidently a good species.

Sub-Gen. d. LOPHODERMIUM.

Asci dehiscent, clavate; sporidia filiform.

2299. Hysterium (Lophodermium) xylomoides. *Chev.* "Leaf Hysterium."

Innato-superficial, scattered, elliptic, obtuse, slightly swollen, even, black, opaque; lips broad, depressed; asci clavate, acutely pedicellate; sporidia hyaline, filiform, parallel in the asci, flexuous and contorted when free.—*Duby Hyst.* 1, *p.* 45. *Pers. Ic. & Desc.* ii. *t.* 10, *f.* 3, 4. *H. foliicolum*, *Fr. S.M.* ii. *p.* 592. *Eng. Fl.* v. *p.* 296 *(partly)*. *Lib. exs. no.* 72. *Desm. exs. no.* 995. *Rabh. exs.* ii. *no.* 156. *Fckl. exs. no.* 742. *Berk. exs. no.* 196.

On dry leaves of *Rosaceæ* and berberry. Common on hawthorn leaves. [United States.]

2300. Hysterium (Lophodermium) melaleucum. *Fr.*

Hypophyllous, innate, elliptic, even, black; lips sub-connivent, white; asci clavate, not pedicellate; sporidia filiform, pale yellow.—*Fr. S.M.* ii. *p.* 589. *Eng. Fl.* v. *p.* 295. *Fr. Obs.* i. *t.* 2, *f.* 1. *Schm. exs. no.* 81. *Moug. exs. no.* 654. *Grev. t.* 88. *Lib. exs. no.* 178. *Fckl. exs. no.* 736.

On dead leaves of *Vaccinium Vitis Idæa*. Scotland.

2301. Hysterium (Lophodermium) maculare. *Fr.* "Spot Hysterium."

Seated on pallid spots, innate, oval, subdepressed, even, pruinose, black; lips rufescent; asci clavate, scarcely attenuated at the base; sporidia filiform, hyaline.—*Fr. S.M.* ii. *p.* 592. *Duby Hyst. p.* 45. *Fries. exs. no.* 167. *Moug. exs. no.* 1072. *Desm. exs.*

ii. *no.* 561. *Grev. t.* 129, *f.* 2. *Lib. exs. no.* 370. *Berk. Outl. p.* 380. *Fckl. exs. no.* 1752.

On leaves of *Vaccinium*.

2302. Hysterium (Lophodermium) pinastri. *Schrad.*
" Pine-leaf Hysterium."

Epiphyllous, innato-immersed, oval-oblong, longitudinally striate, blackish, opening with an elliptic mouth; disc livid; asci elongated, clavate, not pedicellate; sporidia filiform, hyaline, incrassated at the apex.—*Fr. S.M.* ii. *p.* 587. *Eng. Fl.* v. *p.* 295. *Fckl. exs. no.* 734. *Cooke exs. no.* 396. *Schrad. J. Bot. t.* 3, *f.* 4. *Moug. exs. no.* 76. *Schm. exs. no.* 135. *Grev. t.* 60. *Tul. Carp.* iii. *p.* 113.

On pine leaves. Common. [United States.]

2303. Hysterium (Lophodermium) juniperinum. *De Not.*
" Juniper Hysterium."

Hypophyllous, minute, at first punctiform, innato-emergent, scattered, convex or flattened, elliptic, obtuse, scarcely rising above the matrix, black, shining; lips closely connivent, at length opening by a narrow fissure; asci clavate, sessile; sporidia filiform, straight or curved.—*Duby Hyst. p.* 46. *Grev. t.* 26. *Cooke exs. no.* 395. *Rabh. exs. no.* 1658, ii. 445. *H. Pinastri*, β. *Juniperinum, Fr. S.M.* ii. *p.* 588. *Desm. exs. no.* 780, ii. 183. *Eng. Fl.* v. *p.* 295. *Fckl. exs. no.* 735.

On Juniper leaves.

Perithecia scarcely one and a half times as long as broad. Asci ·001 m.m. long.

2304. Hysterium (Lophodermium) arundinaceum. *Schrad.*
" Reed Hysterium."

Innate, oval, depressed, rugulose, opaque, brownish-black, opening longitudinally, at length gaping; asci clavate, not pedicellate; sporidia filiform, hyaline.—*Fr. S.M.* ii. *p.* 590. *Berk. exs. no.* 94. *Fckl. exs. no.* 737. *Cooke exs. no.* 394. *Moug. exs. no.* 655. *Fries exs. no.* 328. *Eng. Fl.* v. *p.* 295. *Desm. exs. no.* 85. *Rabh. exs.* i. *no.* 1151, ii. *no.* 34, & i. *no.* 357, ii. *no.* 575. *H. culmigenum, Fr. Obs.* ii. *t.* 7, *f.* 3. *Fckl. exs. no.* 738. *Fr. exs. no.* 97. *Desm. exs. no.* 238. *Eng. Fl.* v. *p.* 296. *Grev. t.* 87.

On sheaths of reeds and grasses. [Mid. Carolina.]

2305. Hysterium (Lophodermium) typhinum. *Fr.* "Club-mace Hysterium."

Innate, oblong, covered by the bullate epidermis, at length naked, black; lips slightly swollen, parallel; asci cylindrical; sporidia filiform, hyaline.—*Fr. S.M.* ii. *p.* 590. *B. & Br. Ann. N. H. no.* 589.

On leaves of *Typha latifolia*.

Gen. **325.** **SPOROMEGA,** Corda.

Receptacle horny; asci elongated, clavate; sporidia filiform, when mature separating above, and united at the base. (*Fig.* 360.)

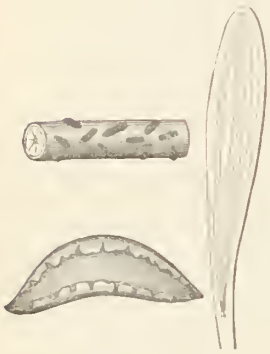


Fig. 360.

2306. Sporomega cladophila. *Lev.* "Whortlebury Sporomega."

Sub-innate, oblong-elliptic, at first brownish, from the almost adnate cuticle, at length, naked, black; lips acute, not inflexed; disc linear; asci cylindrical; sporidia filiform, hyaline.—*Hysterium vaccinii, Carm, Eng. Fl.* v. *p.* 295. *Sporomega cladophila, Duby Hyst. p.* 48. *Fckl. exs. no.* 1967.

On stems of *Vaccinium myrtillus*. Appin.

In its early stage of growth it appears like a brown spot, as it swells the cuticle is raised up, and at length splits longitudinally, and for a long time closely covers the two lobes of the perithecium.—*M.J.B.* (*Fig.* 360.)

Gen. **326.** **COLPOMA,** Wallr.

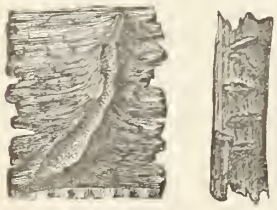


Fig. 361.

Perithecia between coriaceous and spongy, flexuose, elliptic or linear; base plane, adnate, at first closed, then opening with a longitudinal fissure; lips soon divergent and open; nucleus gelatinous; asci elongato-clavate; sporidia filiform, free above, fixed at the base.—*Duby Hyst. p.* 50. (*Fig.* 361.)

2307. Colpoma quercinum. *Wallr.* "Oak-twig Colpoma."

Simple, gregarious, elongated, flexuose, at first closed, pruinose, blackish cinereous, at length open; disc broad, pallid; asci clavate; sporidia filiform.—*Duby. Hyst. p.* 50. *Fckl. exs. no.* 760. *Cooke exs. no.* 397. *Cenangium quercinum, Eng. Fl.* v. *p.* 212. *Berk. exs. no.* 26. *Clithris quercinum, Fr. S.M.* ii. *p.* 189. *Bull. t.* 452, *f.* 4. *Tode. t.* 8, *f.* 64. *Moug. exs. no.* 367. *Sphæria collapsa, Sow. t.* 373, *f.* 3. *Hyst. quercinum, Nees. f.* 300. *Schm. exs. no.* 65.

On oak twigs. Common. [Mid. Carolina.]

(*Fig.* 361.)

Gen. **327. AILOGRAPHUM,** Lib.

Fig. 362.

Perithecia minute, linear, or elliptico-linear, simple or branched, opening with a narrow, longitudinal fissure; asci sacciform, ovoid oblong.—*Lib. Exs. no.* 272. *Duby Hyst. p.* 37. (*Fig.* 362.)

2308. Ailographum vagum. *Desm.* "Holly-leaf Ailographum."

Perithecia innato-superficial, scattered, elliptical, or linear-ovate, simple or forked, black, opaque; lips closely connivent, acute; asci ellipsoid, attenuated from the base; sporidia very minute, oblong.—*Ann. Sc. Nat.* xix. *p.* 362. *Desm. exs. no.* 1529. *Duby Hyst. p.* 38. *A. Hederæ, Lib. exs.* 272. *Rabh. exs. no.* 1055, ii. *no.* 528. *Hyst. micrographum, De Not. Micro. Ital.* iv. *f.* 3.

On dry coriaceous leaves. (Shere, *M.C.C.*)

The perithecia are scarcely visible to the naked eye.

2309. Ailographum maculare. *B. & Br.* "Spot Ailographum."

Perithecia mostly simple, sub-concentric, disposed in orbicular spots; asci short, oblong; sporidia oblongo-clavate.—*Br. & Br. Ann. N.H. no.* 968, *t.* 16, *f.* 21.

On an old mat made of *Typha.* May. Hainault Forest.

Forming little orbicular black patches, in which the perithecia are disposed in a somewhat concentric fashion; perithecia mostly simple; asci short, oblong; sporidia oblongo-clavate (·0005 in.) ·0125 m.m. long. Mycelium matted, brown, producing here and there dark patches; very distinct in habit, and in the longer asci. (*Fig.* 362.)

Asterina Babingtonii, Berk. is claimed by lichenologists under the name of *Strigula Babingtonii*. It is at the best a very doubtful fungus.

Gen. **328.** **ACTIDIUM**, Fr.

Fig. 363.

Perithecia free, carbonaceous, black, fragile, stellate, opening from the centre in radiating fissures; asci clavate, evanescent; paraphyses none. —*Fr. Obs.* i. *p.* 190. *Duby Hyst. p.* 43. (*Fig.* 363.)

2310. **Actidium hysterioides.** *Fr.* "Stellate Actidium."

Perithecia stellate, gregarious, punctiform, black, even, at first rounded, then 4-6 gonate, radiato-stellate, somewhat closed; asci clavate, sporidia cylindrical, straight.—*Fr. S.M.* ii. *p.* 596. *Curr. Linn. Trans.* xxiv. *p.* 155.

On chips of wood under fir trees. Weybridge. May.

(*Fig.* 363.)

Gen. **329.** **LOPHIUM**, Fr.

Fig. 364.

Perithecia stipitate, wedge-shaped, opening with a narrow, longitudinal fissure; asci elongated.—*Berk. Outl. p.* 381. (*Fig.* 364.)

2311. **Lophium elatum.** *Grev.* "Elongated Lophium."

Stipitate, compressed, black, transversely striate, dilated gradually upwards into an elongated wedge-shaped perithecium; asci cylindrical; sporidia filiform, multiseptate.—*Grev. t.* 177, *f.* 2. *Fr. El.* ii. *p.* 113. *Eng. Fl.* v. *p.* 281.

On fir wood. Rare. Appin.

2312. **Lophium mytilinum.** *Fr.* "Shell Lophium."

Shortly pedicellate, much dilated upwards, transversely striate, black, shining; asci cylindrical; sporidia filiform, multiseptate.

—*Fr. S.M.* ii. *p.* 533. *Grev. t.* 177, *f.* 1. *Nees. f.* 301. *Eng. Fl.* v. *p.* 280. *Fckl. exs. no.* 762.

On bark or wood of fir trees. (*Fig.* 364.)

Gen. **330.** **STEGIA,** Fr.

Fig. 365.

Perithecium orbicular, splitting horizontally; operculum deciduous. *Berk. Outl. p.* 381. (*Fig.* 365.)

2313. Stegia ilicis. *Fr.* "Holly Stegia."

Innate, operculum nearly plane, falling off, surrounded by a ring-like, whitish margin; asci linear; sporidia oblong.—*Fr. El.* ii. *p.* 112. *Cooke exs. no.* 178. *Eustegia ilicis, Eng. Fl.* v. *p.* 280. *Fckl. exs. no.* 1589. *Fries. exs. no.* 417. *Moug. exs. no.* 82. *Sph. concava, Sow. t.* 317. *Xyloma concava, Grev. Fl. Ed. p.* 368. *Baxt. exs. no.* 77.

On holly leaves. Common. (*Fig.* 365.)

Gen. **331.** **TROCHILA,** Fr.

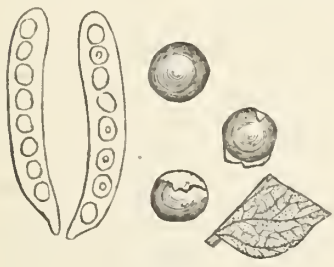


Fig. 366.

Disc innate, erumpent, placed upon a black hypothecium, persistent.—*Berk. Outl. p.* 381. *Fr. S.V.S. p.* 367. (*Fig.* 366.)

2314. Trochila lauro-cerasi. *Fr.* "Laurel Trochila."

Hypophyllous, orbicular, punctiform, hollow when collapsed, at length black, splitting into three acute laciniæ; asci linear; sporidia oblong, uniseriate.—*Fr. S.V.S.* ii. *p.* 367. *Fckl. exs. no.* 1112. *Cooke exs. no.* 179. *Phacidium Laurocerasi, Desm. exs. no.* 188. *Eng. Fl.* v. *p.* 293. *Moug. exs. no.* 985. *Ayres. ex. no.* 72. *Berk. exs. no.* 45.

On fallen laurel leaves. Common.

Disc yellowish when moist. Sporidia (·0003-·0004 in.) ·0075-·01 m.m long.

2315. Trochila buxi. *Capron.* "Box Trochila."

Hypophyllous, blackish, cæspitose or scattered, splitting into minute unequal laciniæ; sporidia oval, elongated.—*E. Capron in litt. T. craterium, var. Buxi.* Auct.

On box leaves.

Sporidia oval, elongated (·0004-·0005 in.), ·01-·0125 m.m. long, much larger than in *T craterium*; contents, when fresh, granular. More closely allied to *T lauro-cerasi*.—*E. C.*

2316. Trochila craterium. *Fr.* "Ivy-leaf Craterium."

Pycnidia.—Stylospores minute, subglobose.—*Myxosporium paradoxum, De Not. Micr. Ital. Dec.* ii. *f.* 10. *B. & Br. Ann. N.H. no.* 439. *Glœosporium Notarisii, Mont. Ann. Sc. Nat.* (1849) xii. *p.* 296. *Fckl. exs. no.* 1649.

Ascophore.—Hypophyllous, scattered, blackish, at length deeply collapsed; asci cylindrical; sporidia very shortly oval, almost round, sometimes with a large nucleus.—*Fr. S.V.S.* ii. *p.* 367. *Fckl. exs. no.* 1113. *Cooke exs. no.* 180. *Sph. craterium, Eng. Fl.* v. *p.* 277. *S. punctiformis, var.* β *Hederæ, Grev. Fl. Ed. Baxt. exs. no.* 29. *Ayres. exs. no.* 65.

On dead ivy leaves. Common. [Mid. Carolina.]

Sporidia nearly globose ·0003 in.) ·0075 m.m. long.. (*Fig.* 366.)

Order XXXI. SPHÆRIACEI.

Perithecia carbonaceous or membranaceous, sometimes confluent with the stroma, pierced at the apex, and mostly papillate; hymenium diffluent.—*Berk. Outl. p.* 381.

A. Nectriæi
B. Xylarici
C. Valsei
} Compound.
D. Sphærici . . Simple.

A. *Nectriæi.*

Stipitate—
Clavate or capitate . . . . . *Torrubia.*
Head globose, base sclerotioid . . *Claviceps.*
Parasitic on grass—
Stroma mycelioid . . . . . *Epichloe.*
Variable—
Sporidia didymous, at length separating *Hypocrea.*
Sporidia didymous, ejected in tendrils—parasitic on fungi . . . . . *Hypomyces.*
Stroma definite, perithecia free, clustered or scattered . . . . . *Nectria.*
Perithecia erect, in a coloured sac . . . . *Oomyces.*

Gen. **332.** **TORRUBIA,** Lev.

Fig. 367.

Stroma vertical, fleshy, clavate or capitate; perithecia immersed; sporidia linear, multi-septate, breaking up into fragments.—*Tul. Carp.* iii. *p.* 4. *Cordiceps, Fr. Berk. Outl. p.* 381.

(*Fig.* 367.)

2317. Torrubia entomorrhiza. *Fr.*
" Dickson's Torrubia."

Fleshy, head subglobose, brown; stem slender, long; sporidia colourless, long, breaking up into joints.—*Tul. Carp.* iii. *p.* 14, *t.* 1, *f.* 12-18. *Cordyceps entomorrhiza, Fr. S.M.* ii. *p.* 324. *Dicks. t.* 3, *f.* 3. *Berk. Outl. t.* 23, *f.* 5. *Eng. Fl.* v. *p.* 232. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 6. *Cooke exs. no.* 187.

On dead larvæ and pupæ of moths, buried on the ground. Autumn. [United States.]

Head ½ in. long, broadly elliptic, quite distinct from the stem, changing from chestnut to bright red-brown, minutely dotted with the ostiola, of a tough, fleshy consistence, nearly white within; stem 2 inches high, 1 line thick, nearly equal, pale above, darker below, of the same colour as the head, slightly mottled, almost smooth, giving out at the base numerous root-like filaments; peritheeia completely sunk in the flesh, much elongated, tapering to the orifice, brown, contents of the same colour.—*M.J.B.*

(*Fig.* 367.)

2318. Torrubia gracilis. *B.* "Slender Torrubia."

Head roundish-ovate, even, brown; stem rooting, elongated, cylindrical, somewhat flexuous.—*Tul. Carp.* iii. *p.* 15. *Cordyceps gracilis, Berk. Outl. p.* 382. *Eng. Fl.* v. *p.* 233. *Grev. t.* 86. *D. & M. Fl. Alg.* i. *p.* 449, *t.* 25, *f.* 2.

On the ground in moist places (on larvæ).

Differs entirely from *C. ophioglossoides* in form, and in being destitute of any yellow tinge; the sporidia are also different.—*M. J. B.* It is somewhat doubtful whether this is really distinct from *T. entomorrhiza*.

2319. Torrubia militaris. *Fr.* "Red Torrubia."

Fig. 368.

Conidia.—Subcæspitose, white; stem distinct, simple, becoming smooth; clubs incrassated, mealy; conidia globose.—*Isaria farinosa, Fr. S.M.* iii. *p.* 270. *Link. Diss. f.* 32. *Sturm. t.* 34. *Nees. f.* 85. *Eng. Fl.* v. *p.* 328. *Ramaria farinosa, Sow. t.* 308. *Holms.* i. *f.* 7. (*Fig.* 368.)

Ascophore.—Fleshy, orange-red; head clavate, tubereulose; stem equal; sporidia long, breaking up into joints.—*Tul. Carp.* iii. *p.* 6, *t.* 1, *f.* 19-31. *Fckl. exs. no.* 1067. *Cordyceps militaris, Fr. S.M.* ii. *p.* 325. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 3. *Berk. Outl. t.* 23, *f.* 6. *Sphæria militaris, Fl. Dan. t.* 657, *f.* 1. *Vaill. t.* 7, *f.* 4. *Buxb.* iv. *t.* 66, *f.* 2. *Nov. Act. N.C.* iv. *t.* 7, *f.* 5. *Bull. t.* 496, *f.* 1. *Bolt. t.* 128. *Sow. t.* 60. *Nees. f.* 305. *Purt. t.* 23. *Price. f.* 63, *partly.*

On pupæ of moths buried in the ground. Aug.—Oct. [United States.]

2320. Torrubia myrmecophila. *Tul.* "Ichneumon Torrubia."

Ochraceous white; stem thread-shaped; club ovoid, sterile below, ribbed above.—*Tul. Carp.* iii. *p.* 19. *Cordyceps myrmecophila. Berk. Outl. p.* 382. *Hypocrea myrmecophila, Rabh. exs. no.* 1033. *B. & Br. Ann. N.H. no.* 591.

On an *Ichneumon.* May. Leigh Wood.

2321. Torrubia ophioglossoides. *Tul.* "Adder's tongue Torrubia."

Fleshy; head clavate, brownish-black; stem rooting, olive, becoming blackish; sporidia cylindrical, long, breaking up into joints.—*Tul. Carp.* iii. *p.* 20, *t.* 2, *f.* 1-9. *Cordyceps ophioglossoides. Fr. S.M.* ii. *p.* 324. *Schmied. t.* 5, *lower fig. Bull. t.* 440, *f.* 2. *Pers. M.E. t.* 10, *f.* 5-6. *Eng. Fl.* v. *p.* 233. *Moug. exs. no.* 565. *Fries. exs. no.* 301. *Schm. exs. no.* 26. *Berk. Mag. Zool. & Bot. no.* 92, *t.* 7, *f.* 4. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 7.

In woods on *Elaphomyces muricatus.* Oct. [Mid. Carolina.]

Asci very long; paraphyses extremely slender; head ½-1 in. or more long, yellow within, as well as the stem, which at the base divides into long roots, sometimes tufted; joints of sporidia (·0001 in.) ·0025 m.m. long.

2322. Torrubia capitata. *Fr.* "Capitate Torrubia."

Fleshy, head ovato-globose, bay-brown; stem yellow, then blackish; sporidia colourless, jointed, the joints rod-shaped or cylindrical.—*Tul. Carp.* iii. *p.* 22, *t.* 2, *f.* 10-15. *Cordyceps capitata, Fr. S.M.* ii. *p.* 324. *Fl. Dan. t.* 540. *Bolt. t.* 130. *Sow. t.* 354. *Holm.* i. *p.* 38. *Pers. M.E. t.* 10, *f.* 1-4. *Eng. Fl.* v. *p.* 233. *Moug. exs. no.* 763. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 10.

In pine woods on *Elaphomyces granulatus.*

[Low. Carolina.]

Often tufted; stem 1-4 in. high, 2-4 lines thick, equal, smooth, lemon-coloured, at length fibroso-strigose and blackish. The colour of the head borders on yellow, red-brown, and black.—*Fries.* Joints of the sporidia (·0003 in.) ·0076 m.m. long.

2323. Torrubia (?) pistillariæformis. *B. & Br.* "Doubtful Torrubia."

Very small, club brown; head oblong-ovate; stem cylindrical, pallid, dilated at the base, sub-equal.—*Cordyceps pistillariæformis, B. & Br. Ann. N.H. no.* 969, *t.* 16, *f.* 22.

On wych elm twigs. Nov.—Feb. Bathcaston.

Plant 2 lines high; head oblong-ovate, granulated from the perithecia, which are sunk in its substance, rather longer than the pallid, cylindrical stem, which is slightly swollen at the base. Fruit unknown. Grows on a sclerotioid substance.—*B. & Br.*

Gen. **333.** **CLAVICEPS,** Tul.

Fig. 369.

Stroma sclerotioid, sub-cylindrical; fructifying head distinct, fleshy, subglobose, coloured; asci linear, thickened at the apex; sporidia filiform.—*Tul. Ann. Sc. Nat.* 1853, xx. *p.* 43.

(*Fig.* 369.)

2324. Claviceps purpurea. *Tul.*
"Purple Claviceps."

Stroma.—Horn-shaped, cylindrical, externally sub-pruinose, purple-black, within white or purplish.—*Sclerotium clavus, D.C. Fl. Fr.* vi. *p.* 115. *Spermœdia clavus, Fr. S.M.* ii. 268. *Eng. Fl.* v. 226. *Secale cornutum. Bald. Diss.* 1771, *et multis aliis*, "Ergot of Rye," &c.

Spermogonia?—Effused, red; stroma expanded; spermatia curved.—*Fusarium heterosporium, Nees. N. A. Cur.* ix. 135. *B. & Br. Ann. N.H. no.* 955. *Fckl. Sym. Myc. p.* 186.

Conidia.—Elliptical, moniliform, finally separating, with one or more granules.—*Oidium abortifaciens, B. & Br. Ann. N.H. no.* 545. *Ergotetia abortifaciens, Quek. Linn. Trans.* xviii. 471.

Ascophore.—Fleshy, pale purple; head globose, tuberculose; stem short, flexuous; sporidia filiform colourless, attenuated at each end, variable in length.—*Tul. Ann. Sc. Nat.* 1853, xx. *t.* 3. *Cordyceps purpurea, Fr. S.M.* ii. *p.* 325. *Berk. Outl. p.* 382. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 25. *Fl. Dan. t.* 1781. *Fckl. exs. no.* 1068.

On grains of corn and grasses.

Sporidia (·002-·003 in.) ·05-·076 m.m. (*Fig.* 369.)

2325. Claviceps microcephala. *Tul.* "Small-headed Claviceps."

Stroma.—Horn shaped, cylindrical, blackish, internally whitish.—*Sclerotium clavus, D.C. var. phragmitis*, "Reed Ergot," &c.

Ascophore.—Minute; head globose; stem long, slender, flexuous; asci with a distinct hyaline knob at the apex; sporidia colourless, filiform, attenuated at either end.—*Tul. Ann. Sc. Nat.* 1853, xx. *t.* 4, 5. *Fckl. exs. no.* 1069. *Cordyceps microcephala, Berk. Outl. p.* 382. *Sphæria Hookeri, Eng. Fl.* v. *p.* 234 ? *Curr. Linn. Trans.* xxii. *p.* 264.

On seeds of reed, &c.

Sporidia (·002-·0034 in.) ·05-·08 m.m.

Claviceps nigricans, *Tul. Ann. Sc. Nat.* 1853, xx. *t.* 4, *f.* 15-22.

The stroma (ergot) is common enough in Britain on *Eleocharis*, but the mature *Claviceps* (ascophore) has not been found.

Gen. **334.** **EPICHLOE**, Fr.

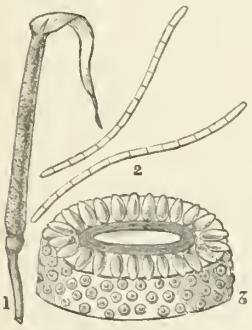


Fig. 370.

Parasitic on grass, coloured; peritheeia fleshy, immersed in a myeelioid stroma; sporidia linear. —*Fr. S. V. S. Tul. Carp.* iii. *p.* 24. (*Fig.* 370.)

2326. Epichloe typhina. *Berk.*
" Grass Epichloe."

Elongated, innate, surrounding the stem, dirty white, soon orange-yellow, at length granulated from the projecting ostiola; sporidia cylindrical, straight, with numerous nucleoli.—*Tul. Carp.* iii. *p.* 24. *Fckl. Sym. Myc. p.* 186. *Hypocrea typhina, Berk. Outl. p.* 383. *Dothidea typhina, Fr. S. M.* ii. *p.* 553. *Sphæria typhina, Pers. Ic. & Desc. t.* 7, *f.* 1. *Eng. Fl.* v. *p.* 285. *Moug. exs. no.* 79. *Fries. exs. no.* 37. *Schm. exs. no.* 4. *S. spiculifera, Sow. t.* 274. *Stromatospheria typhina, Grev. t.* 204.

On living grasses. Common. [Low. & Mid. Carolina.]

The grass affected with this curious parasite mimics the reed mace (*Typha*) in its appearance. It surrounds the stalks to an extent varying from half an in. to 2 in., is white in its earliest state, but in a few days acquires the orange-yellow colour of maturity.—*Johnst. Fl. Ber.* (*Fig.* 370.)

Gen. **335.** **HYPOCREA**, Fr.

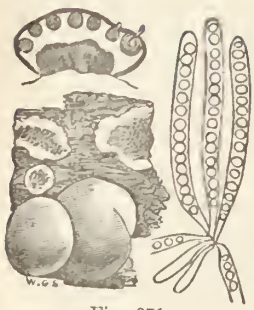


Fig. 371.

Stroma variable; perithecia fleshy, pallid or coloured, ovato-globose and obtuse; asci eight spored; sporidia uniseriate, didymous, with two globose and equal cells, at length separating.—*Fr. S.M.* ii 335. *Tul. Carp.* iii. *p.* 29. (*Fig.* 371.)

2327. **Hypocrea gelatinosa.** *Fr.* "Gelatinous Hypocrea."

Fleshy, convex, equal, opaque, internally whitish; peritheeia prominent, darker than the stroma; sporidia colourless, squarish in the ascus, nearly round when free.—*Fr. S.M.* ii. *p.* 336. *Fries. exs. no.* 304. *Tode. f.* 123, 124. *Fl. Dan. t.* 1782, *f.* 1, 2. *Eng. Fl.* v. *p.* 238. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 33. *Fckl. exs. no.* 993.

On fir. Appin, &c [United States.]

Variable in colour, yellow, green, umber, pallid, &c. Sporidia (·0002 in.) ·005 m.m. long.

2328. **Hypocrea rufa.** *Fr.* "Rufous Hypocrea."

Conidia.—Villous, white; conidia globose, dusky green.—*Trichoderma viride, Pers. Syn. p.* 230. *Fr. S.M.* iii. *p.* 215. *Grev. t* 271. *Eng. Fl.* v. *p.* 323. *Tode. f.* 29. *Bull. t.* 504, *f.* 6. *Sow. t.* 378, *f.* 14. *Fckl. exs. no.* 164.

Ascophore.—Fleshy, convex, irregular, rufous, internally whitish, wrinkled when dry; ostiola slightly prominent; sporidia sixteen, squarish, colourless.—*Tul. Carp.* iii. *p.* 30, *t.* iii. *f.* 1-10. *Fr. S.M.* ii. *p.* 335. *Fr. exs. no.* 303. *Fl. Dan. t.* 1781, *f.* 2. *Eng. Fl.* v. *p.* 238. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 36. *Fckl. exs. no.* 994.

On oak, &c. [United States.]

Sporidia (·00015 in.) ·004 m.m.—*Tul.* (*Fig.* 371.)

2329. **Hypocrea riccioidea.** *Berk.* "Lobed Hypocrea."

Large, fleshy, deeply lobed, orange; sporidia oblong, uniseptate.—*Berk. Outl. p.* 383. *Sphæria riccioidea, Bolt. t.* 182. *Ann.*

N.H. no. 95. *Sphœria parmelioides, Mont. Ann. Sc. Nat.* vi. *t.* 18, *f.* 4. *Acrospermum, Tode, t.* 2, *f.* 15, *a. b.*

On willow. Rare. Halifax.

2330. Hypocrea vitalba. *B. & Br.* "Clematis Hypocrea."

Minute, brown, convex, sublobate; perithecia ovate; sporidia biseriate, triseptate, fusiform, appendiculate, hyaline.—*B. & Br. Ann. N.H. no.* 829, *t.* 9, *f.* 8.

On *Clematis vitalba.* Batheaston.

Forming minute groups of brown, convex, sometimes slightly lobed or confluent stromata; perithecia ovate; ostiola obsolete; asci cylindrical, clavate; sporidia (·0022-·0025 in.) ·05-·06 m.m. long (·00025 in.), ·007 m.m. wide, fusiform, triseptate, hyaline, torulose, elongated at either end into a slender setiform appendage.—*B. & Br.*

2331. Hypocrea citrina. *Fr.* "Lemon-coloured Hypocrea."

Fleshy, effused, nearly plane, lemon coloured; ostiola prominent, brownish; sporidia 16, irregular, colourless.—*Fr. S.M.* ii. *p.* 337. *Grev. t.* 215. *Fr. exs. no.* 31. *Berk. Eng. Fl.* v. *p.* 238. *Berk. Outl. p.* 383. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 51. *Fckl. exs. no.* 996.

On leaves, wood, &c. Appin. [United States.]

Web-like stratum 2-5 inches broad, byssoid at the margin, especially when young, attaching itself to everything lying in its way, plane, but undulated by the subjacent substances, yellow or tawny yellow.—*Grev.*

2332. Hypocrea delicatula. *Tul.* "Delicate Hypocrea"

Perithecia in byssoid patches, delicate, and quite smooth, at first pale yellowish, at length fawn-coloured; asci straight, narrowly linear; sporidia at first cubical, but when free becoming spherical.—*Tul. Carp.* iii. *p.* 33, *t.* 4, *f.* 7-13. *Tul. Ann. Sc. Nat. ser.* iv. *vol.* xiii. *p.* 18. *B. & Br. Ann. N. H.* (1866), *no.* 1176.

Fir plantations. April. Wilts.

This extremely interesting fungus is nearly allied to *H. citrina*, of which it has the habit. It forms patches which are easily separable from the matrix, of a delicate cream-colour, studded with fawn-coloured perithecia.—*B. & Br.* Sporidia (·0001 in.) ·003 m.m.—*Tul.*

2333. Hypocrea alutacea. *Fr.* "Tan-coloured Hypocrea."

Fleshy, soft; head clavate, tan-coloured, pallid, confluent with the stem; sporidia small, at first cylindrical, then didymous, with unequal cells, which afterwards separate.—*Tul. Carp.* iii. *p.* 35, *t.* iv. *f.* 1-6. *Cordyceps alutacea, Fr. S.M.* ii. *p.* 325. *Sow. t.* 159.

Pers. Obs. t. 2, *f.* 2. *Fl. Dan. t.* 300. *Nees. f.* 304. *Eng. Fl.* v. *p.* 235.

In fir woods, amongst leaves, and on furze.

[Mid. Carolina.]

Simple, 2-3 inches high, very even and brittle, at first dirty white, slightly villous, then quite smooth and even, tan-coloured, sometimes entirely white, at length tuberculated with the prominent perithecia. Head obtuse.—*Fries.*

2334. Hypocrea farinosa. *B. & Br.* "Mealy Hypocrea."

Broadly expanded, white; perithecia crowded; hyaline, farinose; asci filiform; sporidia 16, elliptic.—*B. & Br. Ann. N.H. no.* 592.

On fallen branches. Norths. On decayed *Stereum.* July. Chester.

Spreading for some inches over decayed wood, on which it forms a thin white coat; perithecia minute, subglobose, hyaline, nearly collapsed in the centre when dry, growing from a white, mealy subiculum; at first delicately cottony. Asci filiform, containing sixteen elliptic sporidia. Older individuals acquire a dull yellowish tinge.—*B. & Br.*

2335. Hypocrea inclusa. *B. & Br.* "Enclosed Hypocrea."

Subterranean, parasitic, wholly enclosed; perithecia astomous, globose, hyaline, confluent; asci linear; sporidia right, globose. —*B. & Br. Ann. N.H. no.* 970, *t.* 17, *f.* 23.

Parasitic in the flesh of *Tuber puberulum.* Sept. Bristol.

Occupying the place of the asci in the *Tuber;* perithecia globose, hyaline, confluent; asci short, linear. Sporidia (·00015-·0002 in) ·0035-·005 m.m.

Gen. **336. HYPOMYCES,** Tul.

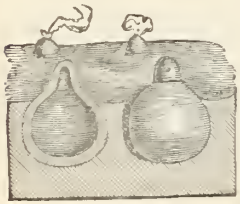


Fig. 372.

Parasitic on fungi; mycelium byssoid; perithecia small, globose, papillate; asci eight spored (rarely 2 or 4), without paraphyses; sporidia uniseriate, lanceolate or elliptic, rarely obtuse, uniseptate, ejected in tendrils.—*Tul. Carp.* iii. *p.* 38.

Mycelium byssoid, colourless or coloured, parasitic on fungi of various kinds. Conidia of two kinds: (1) Microconidia or Conidia proper very copious, colourless, ovate, ellipsoid or cylindrical, simple or septate, even, aerogenous, at first catenate, fasciculate or solitary; (2) Chlamydospores often fewer, commonly much thicker, variously coloured, echinate, rarely smooth, acro or meso-genous. Perithecia small, globose, with a short rostellum or papillate, smooth or sparsely hairy, immersed in the matrix or

hyphasma, or emersed and sessile. Asci long and narrowly linear or obovate, eight spores (rarely 2-4), commonly destitute of paraphyses; spores unisoriato, lanceolate, oblong-lanceolate or elliptic, often acute, rather shortly apiculate, rarely obtuse, even, granular, mostly bilocular, and a little unequal-sided, oozing out at length, in little irregular pallid tendrils.—*Tulasne.*
(*Fig.* 372.)

2336. Hypomyces ochraceus. *Tul.* "Ochrey Hypomyces"

Conidia.—Tufts effused, woolly, white; flocci erect, septate, pellucid; branches and branchlets subulate, patent, verticillate; conidia oblong, diaphanous, attached by an apiculus to the tips of the branchlets.—*Verticillium agaricinum, Corda. Ic.* ii. *f.* 68. *Botrytis agaricina, Ditm. Sturm. t.* 51. *Grev. t.* 126.

Ascophore.—Crowded, peritheeia roundish, yellowish, immersed, with a short, thick, obtuse, exserted mouth, seated upon an orange subiculum; sporidia oblong, lanceolate, uniseptate, constricted, mucronate at each extremity.—*Tul. Carp.* iii. *p.* 41, *t.* vi. *f.* 19, 20, *t.* vii. *B. & Br. Ann. N.H.* (1866), *no.* 1175*, *t.* 5, *f.* 35. *Hypomyces armeniacus, Tul. Ann. Sc. Nat.* (1860), xiii. *p.* 12. *Cryptosphæria aurantia, Grev. t.* 78. *Curr. Linn. Trans. t.* 57, *f.* 6.

On decaying fungi. Near Edinburgh.

Peritheeia minute, densely crowded, and appearing at first like broad, irregular, orange-yellow spots, which spread over the decaying lamellæ of Agarics, and pores of Boleti; the mouths of the peritheeia protrude through a reddish-orange tomentose substance which forms a thin close web, and closely surrounds the base of the mouths, which are short and very obtuse. The peritheeia, while young, are succulent, but at length become half exserted; sporidia elliptical-oblong.—*Grev.* "This is, in all probability, *Cryptomyces aurantia*, Grev. t. 78.'—*B. & Br. Ann. N.H. no.* 1175*.
(*Fig.* 372.)

[Blastotrichum pucciniioides. Preuss. Sturm. xxv. t. 11, is a state of this or some allied species, and has occurred at Bathgate.]

2337. Hypomyces aurantius. *Tul.* "Orange Hypomyces."

Peritheeia gregarious, subrotund, papillate, orange-red, emerging from the effused subiculum; sporidia elliptical, uniseptate?—*Tul. Carp.* iii. *p.* 43. *B. & Br. Ann. N.H.* (1866), *p.* 127. *Ann. N.H.* (1865), *no.* 1102. *Nectria aurantia, Berk. Outl. p.* 393. *Sph. aurantia, Eng. Fl.* v. *p.* 259. *Sph. aurantia, Fr. S.M.* ii. *p.* 440. *Pers. Ic. & Desc. t.* 11, *f.* 4. *Nees. f.* 362.

On *Polyporus squamosus & Ag. ostreatus.* Gopsal—Flintshire, &c. [Low. & Mid. Carolina.]

As there was some doubt about *Sphæria aurantia*, Eng. Fl. being the true plant of Persoon, it was omitted in the "Outlines." It has now, however, been found in abundance in Flintshire, on *Polyporus squamosus.*, and it

is inserted under the generic name proposed by Tulasne for some allied species.—*B. & Br.*

There is a very pale honey-coloured variety, springing from a snow-white subiculum, which accompanies the darker form.—*B. & Br.*

Mr. Currey's specimen on *Polyporus hispidus* probably belongs to this species. Sporidia elliptical (not acuminate or flexuous) ·0005 in., *Curr. Linn. Trans. t.* 57, *f.* 7.

2338. Hypomyces rosellus. *Tul.* "Roseate Hypomyces."

Conidia.—Flocci aggregate, very much branched, white; branchlets racemose; conidia terminal, obovate-cylindrical, septate.—*Dactylium dendroides, Fr. S.M.* iii. *p.* 414. *Eng. Fl.* v. *p.* 345. *Tul. Carp.* iii. *t.* v. *f.* 1-15. *Cooke Quek. Journ.* (1870), *t.* 4. *Mucor dendroides, Bull. t.* 504, *f.* 9. *Trichothecium agaricinum, Bon. Myc. f.* 114-167.

Ascophore.—Perithecia gregarious, globoso-ovate, papillate, deep rose-red, seated on a paler tomentose subiculum; sporidia short, oblong, uniseptate.—*Tul. Carp.* iii. *p.* 45, ii. *t.* 30, *f.* 6-9. *Sph. rosella, Fr. S.M.* ii. *p.* 441. *Eng. Fl.* v. *p.* 259. *Grev. t* 138. *Nectria rosella, Berk Outl. p.* 393. *Ann. N.H. no.* 971*, *t.* 17, *f.* 24 *b*.

On Thelephora, &c. Appin, &c.

The subiculum varies from pale to deep rose-red. Sporidia (·0005 in.) ·0127 m.m. long.

Hypomyces chrysospermus, Tul. is the ascigerous, or perfect condition of which *Sepedonium chrysospermum* is the conidia. Only the latter state has yet been recorded in Britain.

2339. Hypomyces luteo-virens. *Tul.* "Greenish-yellow Hypomyces."

Effused, thin, dirty yellow, with a greenish tint; peritheeia emergent, ostiola crowded, brownish; sporidia colourless, narrowly almond-shaped.—*Tul. Carp.* iii. *p.* 57, *t.* viii. *f.* 15, 16. *B. & Br. Ann. N.H.* (1866), *p.* 128. *Hypocrea luteo-virens, Fr. S.M.* ii. *p.* 339. *A. & G. t.* 6, *f.* 8. *B. & Br. Ann. N.H. no.* 594, 1101*. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 53.

On *Boletus*. Laxton. [Mid. Carolina.]

Perithecia dull yellow orange colour, imbedded in a woolly subiculum, which produces yellow stylospores (*Curr l. c. f.* 53 *c.*); sporidia (·0008 ·0010 in) ·02-·025 m.m.

2340. Hypomyces Broomeianus. *Tul.* "Broome's Hypomyces."

Perithecia ovate-acute, clad with a dense short wool; asci linear, sporidia linear-lanceolate, straight, uniseptate.—*Tul. Carp.*

iii. p. 108. *B. & Br. Ann. N.H.* (1866), *no.* 1175, *t.* 5, *f.* 34. *Hypocrea luteo-virens, Rabh. no.* 751. *Ann. N.H. no.* 1101*.

On *Polyporus annosus.* Nov. Bathcaston.

Conidia (·0002-·0003 in.) ·005-·0076 m.m. long.
Sporidia (·0005-·0006 in.) ·0127-·015 m.m. long.

2341. **Hypomyces lateritius.** *Tul.* "Brick-red Hypomyces."

Broadly effused, fleshy, smooth, pale brick-red; perithecia globose; ostiola punctiform; sporidia elliptico-acuminate, colourless, uniseptate.—*Tul. Carp.* iii. *p.* 62, ii. *p.* 273, *t.* xxx. *f.* 5. *Hypocrea lateritia, Fr. S.M.* ii. *p.* 338. *Eng. Fl.* v. *p.* 238. *Merulius helvelloides, Sow. t.* 402. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 47.

On fungi. Nov. [Mid. Carolina.]

Plant of a rather thick substance, rendering the hymenium of the Agaric on which it grows, and indeed the whole plant, juicy, so that it soon becomes putrid. Perithecia irregularly immersed, at length emergent, minute; surface even, frosted with a thin white meal.—*Fries.*
Sporidia (·0006-·0007 in.) ·015-·0177 m.m.

2342. **Hypomyces torminosus.** *Tul.* "Honey-coloured Hypomyces."

Gregarious; perithecia small, spherical, depressed, mealy, honey-coloured, papillate; papillæ darker; asci cylindrical; sporidia oblong, uniseptate.—*Tul. Carp.* iii. *p.* 40. *Nectria torminosa, Mont. Syll. p.* 225, *no.* 788. *Hypocrea floccosa, Fr. Sum. V.S. p.* 564. *B. & Br. Ann. N.H. no.* 593.

On *Lactarius torminosus.* King's Cliffe. [Low. Carolina?]

Gen. **337.** **OOMYCES,** B. & Br.

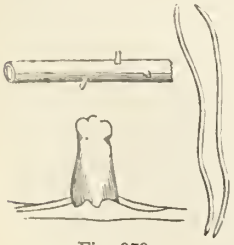


Fig. 373.

Perithecia erect, contained in a polished, coloured sac, which is free above; ostiola punctiform, apical; asci linear; sporidia filiform, very long.—*B. & Br. Ann. N.H. no.* 590. (*Fig.* 373.)

2343. Oomyces-carneo-albus. *B. & Br.* "Flesh-coloured Oomyces."

Scattered, shining, pale flesh-coloured, conical, truncate above and marked with the ostiola; perithecia 3-7, vertical, closely packed in the common, tough, receptacle; asci elongated, cylindrical; sporidia filiform, extremely long, flexuous.—*B. & Br. Ann. N.H. no.* 590. *Sphæria carneo-alba, Lib. exs. no.* 241.

On leaves of *Aira cæspitosa*. Spye Park.

About ⅓rds of a line high, resembling an *Acrospermum*, though differing in structure, and might easily be mistaken for the eggs of some insect. The structure is not visible until a section be made, except so far as the perithecia are indicated by the little dimples in the truncate apex.—*B. & Br.* (*Fig.* 373.)

Gen. **338. NECTRIA**, Fr.

Fig. 374.

Stroma definite; perithecia free, clustered or scattered, coloured (sometimes blackish), fleshy or horny; asci eight or many spored; sporidia of two kinds.—*Tul. Carp.* iii. *p.* 65. (*Fig.* 374.)

I. Cæspitosæ.

2344. Nectria pulicaris. *Tul.* "Blackish Nectria."

Conidia.—Hemispherical, rather firm, rose-coloured; stroma convex; conidia fusiform, nearly straight, pallid.—*Fusarium roseum, Fr S.M.* iii. *p.* 471. *Eng. Fl.* v. *p.* 355. *Fckl. exs. no.* 208-211. *Cooke exs. no.* 344.

Ascophore.—Cæspitose, irregular; stroma formed from the bark; perithecia crowded, superficial, opaque, purple, at length collapsing; sporidia biseriate, colourless, elliptical or pyriform, triseptate or tripartite.—*Tul. Carp.* iii. *p.* 68, *t.* xiii. *f.* 5-9. *Gibbera pulicaris, Fr. S.M.* ii. *p.* 417. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 180. *Fckl. exs. no.* 789. *Fckl. Sym. Myc. p.* 167. *Berk. exs. no.* 253.

On various branches as elder, fig, willow, laburnum, &c.
[Low. & Mid. Carolina.]

The *Fusarium* forms little gregarious red dots on dead stems of mallows, &c. The sporidia measure (·0006-·001 in.) ·015-·025 m.m.

Fuckel states that *Fusarium roseum*, Lk. is the conidia of *Gibbera Saubinettii*; Tulasne refers it to *Nectria pulicaris*.

2345. Nectria ochracea. *Fr.* "Ochraceous Nectria."

Cæspitose, perithecia globose, furfuraceous, bright yellow-ochre; ostiola impressed, papillæform; sporidia ?—*Fr. S.V.S. p.* 387. *Sph. ochracea Grev. Eng. Fl.* v. *p.* 252. *Fr. El.* ii. p. 79.

On dead twigs. Durham.

This most beautiful and curious species resembles very much *Nectria cinnabarina*, but is distinct both in the colour of the perithecia and stroma, which latter is at length black. Fries informs us that he has received the stroma quite naked and a true *Tuberculuria*, as he believes *T. lutescens*, Link. —*Berk. in Eng. Fl.*

2346. Nectria cinnabarina. *Fr.* "Vermillion Nectria."

Conidia.—Erumpent, stratum of conidia red, margin naked.—*Tuberculuria vulgaris*, *Tode. f.* 30. *Moug. exs. no.* 84. *Fr. S.M.* iii. *p.* 464. *Sow. t.* 294. *Baxt. exs. no.* 100. *Desm. exs. no.* 170. *Rabh. exs. no.* 777. *Gard. Chron. Jan.* 28, 1871, *fig.* 26.

Ascophore.—Cæspitose, perithecia globose, corrugated, vermillion, at length brownish; ostiola papillæform; sporidia uniseptate, frequently constricted, rather pointed at each end, colourless.—*Tul. Carp.* iii. *p.* 80, *t.* 12, *t.* 13, *f.* 14-21. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 175, 176. *Fr. S.M.* ii. *p.* 412. *Tode. f.* 68. *Fries. exs. no.* 184. *Moug. exs. no.* 570. *Baxt. exs. no.* 26. *Cooke exs. no.* 260. *Eng. Fl.* v. *p.* 252. *Sph. fragiformis*, *Sow. t.* 256. *Cucurbitaria cinnabarina*, *Grev. t.* 135.

On dead twigs. Winter and Spring. Common.
[United States.]

Sporidia (·0004-·0006 in.) ·01-·015 m.m. (*Fig.* 374.)

2347. Nectria punicea. *Schm.* "Light-red Nectria."

Cæspitose, erumpent, light red; clusters subrotund; perithecia globose, even, at length collapsing and concave; sporidia uniseptate, attenuated towards each end, scarcely constricted, hyaline.—*Tul. Carp.* iii. *p.* 82. *Rabh. F.E. no.* 634. *Fckl. exs. no.* 984. *Cooke exs. no.* 370. *Sphæria punicea*, *Kze. Myc. II.* i. *p.* 61.

On twigs of *Rhamnus frangula*.

2348. Nectria coccinea. *Fr.* "Scarlet Nectria."

Cæspitose, perithecia ovate, even, bright red; ostiola papillæform; sporidia colourless, uniseptate, elliptical, subacuminate. —*Sch. coccinea, Fr. S.M.* ii. *p.* 412. *Eng. Fl.* v. *p.* 253. *Pers. Ic. & Des. t.* 12, *f.* 2. *Moug. exs. no.* 180. *Fries. exs. no.* 183. *Sph. mori, Sow. t.* 255. *Baxt. exs. no.* 25. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 174, 175.

On dead twigs. Common. [United States.]

Sporidia (·0005 in.) ·0127 m.m.

2349. Nectria cucurbitula. *Fr.* "Orange-red Nectria."

Cæspitose; perithecia ovato-globose, even, orange-red, at length collapsed, cup-shaped, ostiola obsolete; sporidia colourless, irregularly elliptical, mixed with asci, producing minute, curved sporidia.—*Tul. Carp.* iii. *p.* 86. *Sph. cucurbitula, Fr. S.M.* ii. *p.* 415. *Tode. f.* 110. *Nees. f.* 327. *Fries. exs. no.* 263. *Berk. Ann. N.H. no.* 174-609. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 178.

On dead branches. [Low. & Mid. Carolina.]

Easily distinguished from all similarly coloured species by its asci being filled with numerous minute curved sporidia (·0001-·0002 in.) ·0025-·005 m. m.—*B.*

2350. Nectria sinopica. *Fr.* "Brick-red Ivy Nectria."

Sub-cæspitose; perithecia small, globose, even, somewhat brick-red, at length collapsing and cup shaped; disc brown; ostiola papillate; asci linear; sporidia elliptic, uniseptate.—*Tul. Carp.* iii. *p.* 89, *t.* xi. *f.* 1-10. *De Not. Sfer. Ital. t.* 2, *f.* 6. *Sph. sinopica, Fr. El.* ii. *p.* 81. *Berk. Ann. N.H. no.* 97. *Curr. Micr. Jour.* iii. *p.* 270. *Moug. exs. no.* 1335. *Desm. exs. no.* 1259.

On shoots of ivy. King's Cliffe.

Each articulation of the sporidia sometimes contains a single nucleus. Perithecia when young frosted with a yellowish meal.

2351. Nectria aquifolia. *Berk.* "Large-spored Holly Nectria."

Cæspitose; stroma yellowish within; perithecia globose, rugulose, ambilicate from collapsing, at first brick-red, then pale, at length black; sporidia colourless, elliptical, pseudo-septate, by division of endochrome.—*Berk. Outl. p.* 393. *Tul. Carp.* iii. *p.* 87, *t.* x. *S. aquifolia, Fr. El.* ii. *p.* 82. *Eng. Fl.* v. *p.* 253. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 183.

On dead holly. Apethorpe.

Sporidia (·0005 in.) ·0127 m.m.

Tulasne unites *N. inaurata* with this species.

" Fungus octosporus simul et macrosporus, sporis saepius muticis.=*N. aquifolia*, *B.*

Fungus polysporus et microsporus, vel octosporus cum sporis minimis et appendiculatis.=*N. inaurata*, *B.*"

2352. Nectria inaurata. *B. & Br.* " Small-spored Holly Nectria."

Cæspitose; perithecia globose, then depressed, at length brown tinged with red, frosted with yellow; ostiola papillæform, at length impressed, naked, black-brown; asci and sporidia of two kinds, some clavate, with numerous small curved sporidia, others cylindrical, with eight elliptic sporidia, appendiculate at both ends.—*B. & Br. Ann. N.H. no.* 781*. *Gard. Chron.* 22*nd July*, 1854. *Tul. Carp.* iii. *p.* 87.

On dead holly. Bath.

The larger asci are clavate, containing curved, minute sporidia, not exceeding (·00015 in.) ·0035 m.m. The smaller cylindrical asci contain eight elliptic, uniseptate sporidia (·0005-·0006 in.) ·0125-·015 m.m. long, furnished with a delicate, hyaline appendage at either end.

2353. Nectria Ralfsii. *B. & Br.* " Ralfs's Nectria."

Cæspitose; perithecia thick, orange, densely clothed with whitish meal, strongly collapsed when dry, mouth obscure, papillæform; asci clavate; sporidia elongated, uniseptate.—*Ann. N.H. no.* 780.

On dead branches (beech and furze).

Cæspitose. Perithecia orange, globose, but strongly collapsed, when dry covered with whitish furfuraceous scales; mouth generally obscure, sometimes minutely papillæform; asci clavate; sporidia oblong, elongated, uniseptate, with one or two nuclei in each division, varying greatly in size, from (·0006-·001 in.) ·015-·025 m.m. long. The hymenium is sometimes exposed, apparently from the splitting off of the upper portion of the perithecium.

2354. Nectria hirta. *Blox.* " Hairy Nectria."

Perithecia minute, subglobose, with a slightly prominent ostiolum, of a pinkish-salmon colour, covered with prominent white hairs; sporidia biseriate, curved, colourless, tapering slightly at each end, multiseptate.—*Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 24. *B. & Br. Ann. N.H. no.* 1101.

On decaying rails. Twycross.

A small but beautiful species, remarkable for its hairy perithecia, and the great size of its sporidia, which differ entirely from the ordinary form of fruit in *Nectria*. Sporidia (·003 in.) ·075 m.m. long.

II. Byssisedæ.

2355. Nectria Albertini. *B. & Br.* "Roseate Nectria."

Perithecia gregarious, ovate, acute, papillate, rose coloured, seated on a roseate tomentose subiculum; sporidia swollen in the middle, fusiform, uniseriate.—*Ann. N.H. no.* 971, *t.* 17, *f.* 24 *a. Sphæria rosella, A. & S. t.* 9, *f.* 3. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 3.

On the ground, on sticks, leaves, &c. Near Bristol. [Mid. Carolina?]

Differs most distinctly in the fruit from *Nectria rosella*, Fr. which is now included under *Hypomyces*.

III. Villosæ.

2356. Nectria flavida. *Fr.* "Yellow Nectria."

Stroma floccose, delicate, yellow; perithecia subglobose, minute, orange, covered with thin yellow down; ostiola naked, rounded; sporidia elongated, fusiform, curved.—*Fr. Summ. V.S. p.* 388. *Sph. flavida, Corda.* iv. *t.* 8, *f.* 117. *B. & Br. Ann. N.H. no.* 610.

On decayed stumps. Leigh Wood, Bristol.

2357. Nectria funicola. *B. & Br.* "Rope Nectria."

Perithecia scattered, orange, ovate, attenuated upwards, clothed with scattered, short, obtuse hairs; asci clavate; sporidia oblong-elliptic, triseptate.—*B. & Br. Ann. N.H. no.* 611.

On decayed rope. Oct. King's Cliffe.

Minute, scattered; perithecia ovate, attenuated above, clothed with short obtuse, colourless hairs; orifice obtuse, without any distinct papilla; asci clavate; sporidia oblong-elliptic when seen from the back, subcymbiform when seen laterally; the endochrome is more or less perfectly divided by septa into four parts.—*B. & Br.*

IV. Denudatæ.

2358. Nectria peziza. *Fr.* "Cup-like Nectria."

Gregarious, soft; perithecia globose, even, sub-papillary, orange-pink, concave when collapsed; sporidia broadly elliptic, colourless, uniseptate.—*Fr. S.V.S. p.* 388. *Berk. Outl. p.* 393, *t.* 24, *f.* 6. *Sph. Peziza, Fr. S.M.* ii. *p.* 452. *Tode. f.* 122. *Moug. exs. no.* 483. *Fries. exs. no.* 235. *Sturm. t.* 12. *Fckl. exs. no.* 982.

Berk. exs. no. 176. *Grev. t.* 186, *f.* 2. *Hoff. B.T. t.* 12, *f.* 2. *Nees. f.* 361. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 44. *Eng. Fl.* v. *p.* 262. *Peziza hydrophora, Bull. t.* 410, *f.* 2. *Sow. t.* 23.

On decayed stumps. [United States.]

Sporidia (·0004-·0006 in.) ·01-·015 m.m. long.

Nectria aurea, *Grev. t.* 47.

Messrs. Berkeley and Broome state (Ann. N.H. 1866, p. 128) that the *Sphæria aurea* of Greville is a *Nectria* allied to *N. peziza*.

2359. Nectria platasca. *Berk.* "Touchwood Nectria."

Scattered; perithecia orange, globose, confluent with the subobtuse ostiolum; base immersed; asci broad above; sporidia oblong, triseptate, quadrinucleate.—*Berk. Outl. p.* 393. *Sph. platasca, Eng. Fl.* v. *p.* 263.

On touchwood. Rockingham Forest.

Perithecia globose, but tapering above into the ostiolum, which varies somewhat in length, so as to have a slightly ovate appearance, immersed in the soft white wood, almost to the base of the ostiolum, of the same colour as *Peziza aurantia*, with now and then a few indistinct filaments; asci broad above; sporidia oblong, divided into four articulations, each containing a nucleus.—*M.J.B.*

2360. Nectria sanguinea. *Fr.* "Blood-red Nectria."

Scattered, soft, minute; perithecia ovate, papillary, blood-red; sporidia elliptical, colourless, uniseriate, uniseptate.—*Curr. Linn. Trans.* xxii. *t.* 57, *f.* 45. *Fr. S.V.S. p.* 388. *Sph. sanguinea, Fr. S.M.* ii. *p.* 453. *Eng. Fl.* v. *p.* 263. *Bolt. t.* 121. *Sow. t.* 254. *Fries. exs. no.* 264. *Grev. t.* 175, *f.* 1. *Baxt. exs. no.* 75. *Berk. exs. no.* 83 (*var. cicatricum*).

On sticks, wood, *Hypoxyla, &c.* Common. [United States.]

Sporidia (·0004-·0005 in.) ·01-·0127 m.m.

2361. Nectria episphæria. *Fr.* "Parasitic Nectria."

Gregarious, soft, very small, blood-red; perithecia somewhat compressed, collapsing; papilla convexo-oblong; sporidia colourless, elliptical, acuminate, or round at the ends, endochrome bipartite or binucleate.—*Tul. Carp.* iii. *p.* 91. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 47. *Sph. episphæria, Tode. f.* 89. *Fr. S.M.* ii. *p.* 454. *Fries. exs. no.* 265. *Eng. Fl.* v. *p.* 263. *Grev. t.* 175, *f.* 2.

On *Hypoxyla*, &c. [United States.]

Sporidia (·0002-·0004 in.) ·005-·01 m.m.

2362. Nectria Purtoni. *Curr.* "Purton's Nectria."

Gregarious; perithecia globose, dotted, red, at length blackish, immersed at first in the receptacle; mouth very small, submamillose; sporidia uniseriate, colourless, acuminate, elliptical. —*Curr. Linn. Trans.* xxii, *t.* 49, *f.* 181. *Cucurbitaria pinastri, Grev. t.* 50. *S. Purtoni, Grev.*

On *Valsa abietis.*

Sporidia (·0004 in.) ·01 m.m.

Elevating the bark, which is at length ruptured by the evolution of the perithecia, which are at first included in a receptacle, but having pierced its surface, assume a globular form, and appear as if merely seated on that body, others push aside those which preceded them, and thus irregular clusters are produced. When it occurs it is in great abundance, frequently covering the smaller branches for many feet, at intervals often not exceeding the eighth of an inch.—*Grev.*

2363. Nectria ochraceo-pallida. *B. & Br.* "Pale-ochre Nectria."

Perithecia pallid-ochraceous, ovate, obtuse; ostiola minute, papillæform; asci clavate; sporidia elongated, subfusiform, triseptate.—*B. & Br. Ann. N.H. no.* 607.

On elm branches. Rockingham Forest.

Gregarious, scattered or crowded, perithecia pale-ochre, with a minute papillæform orifice more or less collapsed when dry. Formerly considered as a state of *N. coccinea*, from which the clavate asci and longer sporidia distinguish it.

var. **corallina.** *B. & Br. Ann. N.H. no.* 779*.

On elder and elm.

Rather smaller than the paler plant, and less depressed, but little distinguishable difference in the fruit.—*B. & Br.*

2364. Nectria muscivora. *B. & Br.* "Moss-loving Nectria."

Mycelium effused, white, woolly; perithecia crowded, orange, semi-immersed, ovate; ostiola papillæform; asci clavate; sporidia shortly fusiform.—*B. & Br. Ann. N.H. no.* 608.

On mosses. King's Cliffe. [On *Jungermannia.* S. Carolina.]

Mycelium forming white lanose patches, 2 in. or more in diameter, and rapidly destroying the moss on which it grows. Perithecia collected in little groups, more or less connate, half immersed in the mycelium, bright orange, ovate, sometimes collapsing laterally. Sporidia elliptic, pointed at either end, with a central septum, and the endochrome in each articulation bipartite, probably triseptate when mature.

2365. Nectria arenula. *B. & Br.* "Pale Grass Nectria."

Scattered, whitish-ochre; perithecia ovate, very shortly pedicellate; ostiola papillæform; asci clavate; sporidia oblong, subfusiform, uniseptate.—*Berk. Outl. p.* 394. *Sph. arenula, B. & Br. Ann. N.H. no.* 622, *t.* 9, *f.* 5.

On dead leaves of *Aira cæspitosa*. Feb. Batheaston.

Thinly scattered over the leaves. Perithecia ovate, with an obtuse papillæform ostiolum, contracted at the base, rarely obovate, and perfectly blunt. Asci sub-clavate; sporidia biseriate, oblong, slightly attenuated, rarely sub-elliptic, uniseptate.—*B. & Br.*

2366. Nectria graminicola. *B. & Br.* "Red-grass Nectria."

Perithecia ovate, scattered, at length collapsed, red; sporidia fusiform, uniseptate.—*B. & Br. Ann. N.H. no.* 897, *t.* 11, *f.* 40.

On *Aira cæspitosa*. Jan. Batheaston.

Scattered over the dead leaves, ovate, red, at length collapsed. Sporidia fusiform (·0007-·0008 in.) ·017-·02 m.m. long. Closely resembling *N. peziza*.

2367. Nectria Bloxami. *B. & Br.* "Bloxam's Nectria."

Scattered, dark cinnabar-red; perithecia strongly collapsed, nearly smooth; sporidia elongated, subfusiform, quadrinucleate. —*B. & Br. Ann. N.H. no.* 781.

On dead stems of herbaceous plants. Twycross.

Sporidia (·00065 in.) ·016 m.m. long. Differs from *N. ochraceo-pallida*, not only in its dark cinnabar hue and collapsed perithecia, but in the far more delicate and shorter sporidia. There is sometimes a single very obscure septum.—*B. & Br.*

2368. Nectria helminthicola. *B. & Br.* "Black-mould Nectria."

Parasitic; flesh coloured, minute, globose, smooth; asci narrowed upwards; sporidia bi-quadrinucleate.—*B. & Br. Ann. N.H. no.* 896.

Parasitic on some species of *Helminthosporium*. Jan. Batheaston.

Scarcely visible to the naked eye; asci generally attenuated upwards, often curved; sporidia hyaline, with two to four nuclei, and consequently either uniseptate, or ultimately triseptate (·0006-·00056 in.), about ·015 m.m. long.—*B. & Br.*

2369. Nectria Russeliana. *Mont.* "Russel's Nectria."

Conidia.—Tufts small, scattered, rose coloured, at first surrounded by erect flocci; conidia fusiform, extremely minute, becoming paler by age.—*Chætostroma buxi, Debat. Ann. Sc. Nat.* ix. 1858. *Fusisporium buxi, Eng. Fl.* v. *p.* 352. *Berk. exs. no.* 55. *Volutella buxi, Berk. Outl. p.* 340. *Fckl. exs. no.* 217.

Ascophore.—Small; perithecia gregarious, globose, orange-yellow, at length tawny, beset with hairs; sporidia fusiform, obtuse.—*Mont. Syll. p.* 224. *B. & Br. Ann. N.H. no.* 898. *Tul. Carp.* iii. *p.* 98. *Stigmatea Rousseliana, Fckl. Sym. Myc. p.* 97.

On box leaves. Twyeross.

var. β. **viridis.** Perithecia when dry presenting nearly black specks, when moistened, green, beset with scattered hyaline hairs; sporidia elliptic (·0007 in.) hyaline.—*B. & Br. Ann. N.H. no.* 898.

On box leaves. Batheaston.

var. γ. **fulva.** Perithecia straw-colour or brick-red; sporidia broadly almond-shaped, ·0004-·0005.—*Sph. fulva, Fr. El.* ii. *p.* 90. *Berk. Ann. N.H. no.* 182. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 5. *Fckl. exs. no.* 207.

On box leaves. Milton, Norths.

2370. Nectria umbrina. *Fr.* "Umber Nectria."

Gregarious, ovate, obtuse, minutely papillary, umber, often pruinose at the apex; sporidia?—*Fr. S. V. S. p.* 388. *Berk. Outl. p.* 394. *Sph. umbrina, Berk. Eng. Fl.* v. *p.* 264.

On decaying bean stalks. Dec. Apethorpe.

B. *Xylariei.*

Stipitate—		
	Stroma corky, subclavate	*Xylaria.*
	Stroma rather corky, discoid	*Poronia.*
Shrubby or simple—		
	Perithecia of substance of stem	*Thamnomyces.*
Sessile—		
	Stroma convex or plane	*Hypoxylon.*
	Stroma expanded, pulverulent	*Ustulina.*
	Stroma discoid	*Nummularia.*
	Stroma fused with matrix	*Eutypa.*
	Stroma globose	*Melogramma.*
	Stroma fleshy, epiphyllous	*Polystigma.*
Perithecia none, nucleus immersed in the stroma		*Dothidea.*

Gen. **339.** **XYLARIA**, Fr.

Fig. 375.

Stipitate; stroma corky, rarely fleshy; perithecia immersed; sporidia uniseriate, simple, ovate, dark-coloured.—*Fr. S. V. S. p.* 381. *Berk. Outl. p.* 384. *Tul. Carp.* ii. *p.* 4.

2371. Xylaria polymorpha. *Grev.*
"Many-shaped Xylaria."

Sub-carnose, gregarious, turgid, irregular, dirty-white, then black, receptacle bearing perithecia in every part; conidia broadly obovate; sporidia uniseriate, dark reddish-brown, slightly curved.—*Grev. t.* 237. *Corda Ic.* v. *f.* 52. *Desm. exs. no.* 376. *Berk. Outl. p.* 384. *Tul. Carp.* ii. *p.* 7, *t.* xix, *f.* 15-21. *Sph. polymorpha, Fr. S. M.* ii. *p.* 326. *Obs.* ii. *t.* 2, *f.* 2, 4, 5. *Nees. f.* 307. *Reb. t.* i. *f.* 1. *Weig. Obs. t.* 3, *f.* 6. *Mich. t.* 54, *f.* 4. *Schm. exs. no.* 28. *Fries. exs. no.* 221. *Eng. Fl.* v. *p.* 234, *Curr. Linn. Trans.* xxv. *t.* 45. *f.* 12. *S. digitata, Fl. Dan. t.* 900. *Sow. t.* 69. *Fckl. exs. no.* 1064, 2267. *Bull. t.* 440, *f.* 1.

On old stumps. Common. [Mid. Carolina.]

Sporidia (·0008-·0009 in.) ·02-·023 m.m. *(Fig.* 375.)

2372. Xylaria digitata. *Grev.* "Finger-like Xylaria."

Between fleshy and corky; cæspitose; heads cylindrical, reddish-brown, then black; tips sterile, acute; stem smooth; sporidia uniseriate, dark-brown, curved.—*Grev. Fl. Ed. p.* 356. *Berk Outl. p.* 384. *Sph. digitata, Fr. S. M.* ii. *p.* 326. *Bull. t.* 220. *Schæff. t.* 265. *Hoffm. V. C. t.* 4, *f.* 2. *Pers. Obs.* ii. *t.* 2, *f.* 1-6. *Fl. Dan. t.* 1306. *Nees. f.* 307. *Eng. Fl.* v. *p.* 234. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 16.

On stumps, &c. [Mid. Carolina.]

Stems connate at the base, whence the plant is ramoso-digitate; substance with a simple central pith; perithecia immersed, when young whitish, scarcely pulverulent, soon changing to brown.—*Fries.* Sporidia (·0007 in.) ·017 m.m.

2373. Xylaria corniformis. *Mont.* "Horn-shaped Xylaria."

Corky, brittle, simple, cylindrical, curved, black, covered on all sides with perithecia; base subtuberous, villous; sporidia uniseriate, almond-shaped, double or plano-convex, rather dark

brown.—*Mont. Ann. Sc. Nat.* 1855, iii. *p.* 104. *Berk. Outl. p.* 384. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 20, 21.

On fallen branches. Lancashire. [Low. & Mid. Carolina.]

Sporidia (·0004 in.) ·01 m.m.

2374. Xylaria hypoxylon. *Grev.* "Candle-snuff Xylaria."

Corky, simple or branched, compressed, at first pulverulent with white meal conidia, then naked, black; stem villous; conidia small, narrowly lanceolate; sporidia uniseriate, dark brown, elliptic-acuminate, often cymbiform, with one or two nuclei.—*Grev. Fl. Ed. p.* 355. *Berk. Outl. p.* 384. *t.* 24, *f.* 1. *Tul. Carp.* ii. *p.* 11. *t.* 1, *f.* 1-14. *Sph. hypoxylon, Fr. S.M.* ii. *p.* 327. *Blackst. t.* 1. *Pet. Gaz. t.* 62, *f.* 2. *Mich. t.* 55. *f.* 1. *Holms. p.* 71, *with fig. Bull. t.* 180. *Batsch. f.* 160. *Hoffm. V.C. t.* 3, *f.* 1. *Sow. t.* 55. *Fr. exs. no.* 181. *Eng. Fl.* v. *p.* 235. *Bolt. t.* 129. *Moug. exs. no.* 272. *Borr. exs. no.* 74. *Dicks. t.* 12, *f.* 7. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 17. *Fckl. exs. no.* 1065. *Sci. Goss.* 1871, *p.* 77, *figs.* 45—47.

On stumps, &c. Common. [United States.]

Sporidia (·0004 in.) ·01 m.m.

2375. Xylaria carpophila. *Fr.* "Beech-mast Xylaria."

Corky, slender, simple: head subulate, whitish pulverulent, then blackish: stem very long, root-like; conidia very minute and ovate; sporidia uniseriate, clear light brown, elliptical, or slightly reniform, with one or two nuclei.—*Fr. S.V.S. p.* 382. *Berk. Outl. p.* 384. *Tul. Carp.* ii. *p.* 14, *t.* 1, *f.* 15-20. *Sph. carpophila, Fr. S.M.* ii. *p.* 328. *Pers. Obs. t.* 1, *f.* 5. *Fries. exs. no.* 302. *Schm. exs. no.* 176. *Eng. Fl.* v. *p.* 235. *Fl. Dan. t.* 1858, *f.* 1. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 23. *Fckl. exs. no.* 1066. *Cooke exs. no.* 364.

On beech mast. Common. [Low. & Mid. Carolina.]

Sporidia (·0004 in.) ·01 m.m.

2376. Xylaria pedunculata. *Fr.* "Stalked Xylaria."

Corky, slender, simple, springing from a sclerotioid base; head ovate, or subglobose; sporidia clear brown, eventually black, almond-shaped, or elliptical.—*Fr. S.V.S. p.* 382. *Berk. Outl. p.* 385. *Tul. Carp.* ii. *p.* 17, *t.* 2, *f.* 29, 30. *Sph. pedunculata, Dicks. t.* 8. *Sow. t.* 437. *Berk. exs. no.* 168. *Mag. Zool. & Bot. no.* 93, *vol.* ii. *p.* 223. *Curr. Linn. Trans.* xxv. *t.* 45, *f.* 5. *Gard. Chron. April* 15, 1871. *fig.*

On soil mostly attached to dung.

Sporidia (·0015-·0016 in.) ·03 m.m. Before maturity surrounded by a gelatinous envelope.

2377. Xylaria bulbosa. *B. & Br.* "Bulbous Xylaria."

Corky, simple or forked, brown, then black; stem cylindrical, bulbous at the base and spongy: sporidia narrow, ovate.—*Tul. Carp.* ii. *p.* 20. *B. & Br. Berk. Outl. p.* 385, *t.* 24, *f.* 2. *Sphæria bulbosa, Pers. Obs.* ii. *t.* i. *f.* i.

Amongst fir leaves. Bath.

2378. Xylaria vaporaria. *Berk.* "Currey's Xylaria."

Stroma sclerotioid, corky, rugose, irregular, terminating at the apex in short prominences (possibly abortive receptacles); receptacles conical, stipitate, bearing perithecia only on the lower half; the upper half attenuated, subpulverulent, of a light reddish brown colour, the lower half darker; perithecia rather scattered, slightly prominent; nucleus black, glutinous; sporidia (8) almond-shaped, biseriate, black.—*Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 17, 26. *B. & Br. Ann. N.H. no.* 1095.

On *Sclerotium* found in a mushroom bed. Cornwall.

"This plant was sent in a sclerotioid condition. In Dec., 1862, I planted it in damp sand, covered it with a bell-glass, and kept it moist in a warm room, in a window facing the south. The fertile branches or receptacles soon made their appearance above the surface of the sand, and by the end of March ripe fruit was produced." Sporidia (·0018-·0022 in.), ·04-·055 m.m. long.—*F.C.*

Gen. **340.** **PORONIA,** Fr.

Fig. 376.

Stipitate; stroma between fleshy and corky; fructifying surface discoid; perithecia immersed; sporidia ovate, simple, coloured.—*Fr. Nov. Sym. Myc. p.* 113.

(*Fig.* 376.)

2379. Poronia punctata. *Fr.* "Punctate Poronia."

Stipitate, turbinate, externally blackish; disc truncate, whitish, dotted with the black ostiola; conidia minute, spherical: sporidia at first brown, then black and opaque, elliptical.—*Fr. S.M.* ii. *p.* 330. *Berk. Outl. p.* 385. *Grev. t.* 327. *Tul. Carp.* ii. *p.* 27, *t.* iii. *f.* 17-18. *Sow. t.* 54. *Nees. f.* 315. *Fries. exs. no.* 182. *Eng. Fl. v. p* 235. *Sph. truncata, Bolt. t.* 127, *f.* 2. *Bull. t.* 252. *Fl. Dan. t.* 288. *Moug. exs. no.* 958. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 27.

On horse and cow dung.

Gregarious ½-1 in. high, at first covered with a powdery veil, which at length vanishes and leaves the outer portion of the plant blackish, the disc being still white, but dotted with the orifices of the perithecia, which, from the depression of the cup, are often rather convergent than divergent.—*M.J.B.* Sporidia (·0008-·0012 in.), ·02-·03 m.m.

Gen. **341.** **THAMNOMYCES**, Ehr.

Fig. 377.

Stem shrubby or simple; perithecia of the same substance as the stem. (*Fig.* 377.)

2380. Thamnomyces hippotrichioides. *Ehrb.*
"Horsehair Thamnomyces."

Branched, thread shaped; perithecia scattered, papillate; sporidia ovate, unequal, dark brown.—*Berk. Outl. p.* 385. *Fckl. exs. no.* 2268. *Eng. Fl. v. p.* 284. *Ehr. Hor. Phy. p.* 82. *Sphæria hippotrichioides, Mag. Zool. & Bot. no.* 94. *Sow. t.* 200. *Hypox. loculiferum, Bull. t.* 195, *f.* 1. *Rhizomorpha. Fckl. Sym. Myc. p.* 237.

On old sacks, matting, &c.

The perithecia are either sessile or shortly pedicellate, clothed with a close indistinct tomentum, varying in shape from globose to ovate, with a distinct, very obtuse, papillæform ostiolum. (*Fig.* 377.)

Gen. **342.** **USTULINA**, Tul.

Fig. 378.

Stroma expanded, pulverulent, becoming indurated and carbonized; perithecia immersed; sporidia uniseriate, lanceolate, curved, simple, dark coloured.—*Tul. Carp.* ii. *p.* 23. (*Fig.* 378.)

2381. Ustulina vulgaris. *Tul.*
"Common Ustulina."

Effused, thick, undulato-rugose, when young cinereous or whitish pulverulent, at length rigid; perithecia ovate, with a short neck;

sporidia dark brown, usually somewhat curved.—*Tul. Carp.* ii. *p.* 23, *t.* iii, *f.* 1-6. *Hypoxylon ustulatum, Bull. t.* 487, *f.* 1. *Berk. Outl. t.* 24, *f.* 3. *Fckl. exs. no.* 1063. *Sph. maxima, Bolt. t.* 181. *Sow. t.* 338. *Tode. f.* 129. *Sph. deusta. Fr. S.M.* ii. *p.* 345. *Hoffm. t.* i, *f.* 2. *Eng. Fl.* v. *p.* 240. *Nees. f.* 316. *Fries. exs. no.* 261. *Moug. exs. no.* 276. *Mich. t.* 54, *f.* 1. *Grev. t.* 324, *f.* 2. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 57.

On rotten trunks. Common. [United States.]

At first fleshy and pulverulent, at length naked, very brittle, 2-3 in. broad. Sporidia (·0012-·0016 in.) ·03-·04 m.m. (*Fig.* 378.)

Gen. **343.** **HYPOXYLON**, Fr.

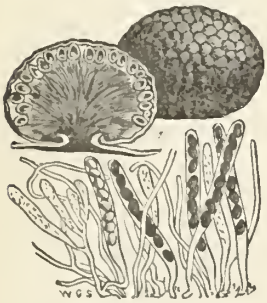


Fig. 379.

Convex or plane; stroma corky or brittle; peritheeia immersed; sporidia ovate, or lanceolate, curved, unsymmetrical, simple, dark-coloured.—*Fr. S. V. S. p.* 383. *Tul. Carp.* ii. *p.* 30. (*Fig.* 379.)

2382. Hypoxylon luteum. *Fr.* "Yellow Hypoxylon."

Orbicular, cup-shaped, black; disc marginate, rugose; stroma pulverulent, yellow; peritheeia in many rows, emergent; sporidia minute, elliptical, brown, generally nucleate.—*Sph. lutea, A. & S. t.* 1, *f.* 1. *Fr. S.M.* ii. *p.* 347. *Berk. Ann. N.H. no.* 170. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 56.

On elder. Clifton, Notts.

Sporidia (·0002-·0003 in.) ·005-·007 m.m.

2383. Hypoxylon succenturiatum. *Fr.* "Tode's Hypoxylon."

Oblongo-pulvinate, immarginate, even, black, greyish-brown within; peritheeia ovate, scattered, irregularly emergent; asci linear; sporidia brown, uniseriate, oblong, obtuse.—*B. & Br. Ann. N.H. no.* 830. *Sph. succenturiata. Tode, f.* 109. *Fr. S.M.* ii. *p.* 347.

On oak. Sept. Weybridge.

Sporidia (·0005-·0006 in.) ·0125-·015 m.m. long.

2384. Hypoxylon concentricum. *Grev.* "Concentric Hypoxylon."

Large, sub-globose, brownish, at length black, concentrically zoned within; perithecia oblong, immersed in the periphery; sporidia dark brown, elliptical, or irregular, sometimes with a large nucleus.—*Tul. Carp.* ii. *p.* 31, *t.* xiii. *f.* 11-16. *Grev. t.* 324, *f.* i. *Berk. Outl. p.* 386. *Curr. Linn. Trans.* xxv. *t.* 45, *f.* 32. *Sph. concentrica, Fr. S.M.* ii. *p.* 331. *Bolt. t.* 180. *Fries. exs. no.* 141. *Eng. Fl.* v. *p.* 236. *Nees. f.* 308. *Ehr. Hor. Bev. t.* 18, *f.* 8. *Fl. Dan.* 2036, *f.* 2. *Schæff. t.* 329. *Tode. t.* 17, *f.* 150. *S. fraxinea, Sow. t.* 160.

On old ash trees. Common. [United States.]

Often 2-3 in. broad, easily known by its zoned stroma. Sporidia (·0005 in.) ·0125 m.m.

2385. Hypoxylon coccineum. *Bull.* "Reddish Hypoxylon."

Conidia.—Gregarious, fasciculate, somewhat branched, umber, branches straight, sub-tomentose.—*Isaria umbrina, Pers. Syn. p.* 689. *Eng. Fl.* v. *p.* 236. *Lycoperdon acariforme, Sow. t.* 146. *Institale acariforme, Fr. S.M.* iii. *p.* 210. *Rav. exs. V. no.* 82. *Anthina flavo-virens, Fr. S.M.* iii. *p.* 284.

Ascophore.—Globose, vermillion-brown, bright black within; perithecia ovate; ostiola at length prominent; sporidia dark opaque brown, elliptical or arcuate.—*Bull. p.* 174, *t.* 495, *f.* 2. *Tul. Carp.* ii. *p.* 34, *t.* iv. *f.* 1-6. *Berk. Outl. p.* 386. *Grev. t.* 136. *Fckl. exs. no.* 1056. *S. fragiformis, Fr. S.M.* ii. *p.* 332. *Pers. Syn. t.* 1, *f.* 1-2. *Eng. Fl.* v. *p.* 236. *Ann. Bot. t.* 2, *f.* 5. *Nees. f.* 309. *Schm. M.H. t.* i. *f.* 20. *Fries. exs. no.* 41. *Moug. exs. no.* 273. *Curr. Linn. Trans.* xxv. *t.* 45, *f.* 30. *S. radians, Tode, f.* 101. *Lyc. variolosum, Sow. t.* 271.

On beech, &c. Common. [Mid. & Up. Carolina.]

Generally round, and about the size of a pea, but when growing on the trunk of a tree sometimes of considerable size and thickness, from many individuals becoming confluent; at first pale pruinose, then bright rust-coloured, bordering on vermillion, gradually becoming tuberculated, when old of a ferruginous black.—*M.J.B.*

Sporidia (·0006 in.) ·015 m.m. (*Fig.* 379)

2386. Hypoxylon multiforme. *Fr.* "Variable Hypoxylon."

Irregular, at first rugose, rusty-brown, at length naked, black, cinereous-black within; perithecia sub-globose, at length prominent, papillate; sporidia rich yellowish-brown, elliptical, frequently slightly curved.—*Fr. S.V.S. p.* 384. *Fckl. exs. no.* 1052.

Grev. t. 114. *Berk. Outl. p.* 386, *t.* 24, *f.* 4. *H. granulosum, Bull. t.* 487. *f.* 2. *Sph. granulosa, Sow. t.* 355. *Pers. Ann. Bot. t.* 2, *f.* 1. *Sph. multiformis, Fr. S.M.* ii. *p.* 334. *Fr. Obs.* i. *t.* i. *f.* 2, 3. *Hedw. Obs. t.* 8, *f. A. Pers. Ic. pict. t.* 3, *f.* 1-3. *Eng. Fl.* v. *p.* 237. *Curr. Linn. Trans.* xxv. *t.* 45, *f.* 28.

On birch. Common. [United States.]

Nothing can be more different than the spongy-looking rubiginous young plant, and the same when mature. Besides this change it often assumes many forms, sometimes elliptic, or strongly raised and crestiform, and, on the other hand sometimes quite flat and depressed. In the latter the perithecia are frequently less prominent and smaller; in every case it is firmly attached to the wood, and in branches covered with the bark erumpent.—*M.J.B.* Sporidia (·0004 in.) ·01 m.m.

2387. Hypoxylon marginatum. *Berk.* "Margined Hypoxylon."

Hemispherical confluent, at length black, of the same colour within, each ostiolum seated in a little margined disc; sporidia elliptical or sub-reniform, pale clear brown, sometimes with one or two nuclei.—*Berk. Outl. p.* 387. *Sph. marginata, Schwein. Journ. Ac. t.* 2, *f.* 8. *B. & Br. Ann. N.H. no.* 595. *Curr. Linn. Trans.* xxvi. *t.* 46, *f.* 60.

On decaying wood. Chatsworth. [United States.]

The sporidia are sometimes separated by a globoso cell like the connecting cells in *Anabaina*.

Sporidia (·0002 in.) ·005 m.m.

2388. Hypoxylon cohærens. *Fr.* "Confluent Hypóxylon."

Confluent, convexo-plane, at first even, dirty-brown, then blackish, black within; perithecia at length rather prominent, papillate; sporidia rather dark brown, irregularly elliptical, frequently rather curved, often nucleate.—*Berk. Outl. p.* 387. *Fckl. exs. no.* 1053. *Sph. cohærens, Fr. S.M.* ii. *p.* 333. *Nees. f.* 310, *B. Fries. exs. no.* 45. *Schm. exs. no.* 126. *Eng. Fl.* v. *p.* 237. *Moug. exs. no.* 764. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 41.

On dead branches. [Mid. & Up. Carolina.]

Sporidia (·0003-·0004 in.) ·0075-·01 m.m.

2389. Hypoxylon argillaceum. *Fr.* "Clay-coloured Hypoxylon."

Subglobose, clay-coloured, brown-black within; perithecia slightly prominent, papillate; sporidia opaque, black-brown, irregularly elliptical, sometimes nucleate.—*Berk. Outl. p.* 387.

Sph. argillacea, Fr. S.M. ii. *p.* 333. *Fr. Obs. t.* 2, *f.* 5. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 35.

On dead ash branches.

2390. Hypoxylon fuscum. *Fr.* "Brown Hypoxylon."

Convex, pulvinate, purple-brown, or brown, at length naked, black, black-brown within; perithecia globose, ostiola umbilicate; sporidia elliptical, or almond shaped, pale brown, then very dark and opaque.—*Fr. S.V.S. p.* 384. *Tul. Carp.* ii. *p.* 39, *t.* 4, *f.* 7-11. *Fckl. exs. no.* 1054. *Berk. Outl. p.* 387. *Sph. fusca, Fr. S.M.* ii. *p.* 332. *Eng. Fl.* v. *p.* 237. *Dill. Musc. t.* 18, *f.* 7. *Weig. t.* 3, *f.* 2. *Hedw. Obs. t.* 6. *Tode f.* 100. *Pers. Ann. t.* 2, *f.* 3. *Nees. f.* 310. *Fries. exs. no.* 42. *Moug. exs. no.* 178. *Schm. exs. no.* 51. *Hoffm. V.C. t.* 5, *f.* 1. *S. tuberculosa, Sow. t.* 373, *f.* 9. *Bolt. t.* 123, *f.* 1. *Willd. Berl.* 7, *f.* 21. *Bull. t.* 468, *f.* 3. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 38.

On hawthorn, hazel, &c. Common. [United States.]

At first clothed with a rusty or purple brown meal, gradually increasing in thickness, at length naked, black, and piereed like a sieve. Sporidia (·0005 in.) ·0125 m.m.

2391. Hypoxylon rubiginosum. *Fr.* "Rust-coloured Hypoxylon."

Broadly effused, thin, pulverulent, bright rust-coloured; perithecia rather prominent; sporidia dark brown, elliptical, slightly irregular, with one or more nuclei.—*Fr. S.V.S. p.* 384. *Fckl. exs. no.* 1051. *Berk. Outl. p.* 387. *Sph. rubiginosum, Fr. S.M.* ii. *p.* 340. *Fries. exs. no.* 142. *Eng. Fl.* v. *p.* 239. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 43.

On decorticated trunks. [Mid. Carolina.]

Forming longitudinally effused spots, 2-4 in. long, at first pulverulent and dirty yellow, when full grown densely covered with rust-coloured powder, at length naked and black; perithecia small, umbilicate at the apex, almost free. Sometimes the perithecia are solitary, larger, distant and papillary; margin barren.—*Fries.*
Sporidia (·0004 in.) ·01 m.m.

2392. Hypoxylon atropurpureum. *Fr.* "Purple-black Hypoxylon."

Effused, thin, flattened, purplish-black; perithecia connate, rather prominent; apex plane, papillate; sporidia dark brown, irregularly elliptical, with one or two nuclei.—*S. atropurpurea, Fr. S.M.* ii. *p.* 340. *Fries. exs. no.* 75. *Eng. Fl.* v. *p.* 239. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 44.

On rotten wood. Appin.

Sometimes the perithecia are scattered, or arranged in lines. Sporidia (·0004-·0005 in.) ·01-·0125 m.m.

2393. Hypoxylon serpens. *Fr.* "Creeping Hypoxylon."

Effused, thin, flattened, black; perithecia subglobose, rather prominent, papillate; sporidia dark brown, irregularly elliptical. *Fr. S.V.Sp. p.* 384. *Sph. serpens, Fr. S.M.* ii. *p.* 341. *Eng. Fl.* v. *p.* 239. *Nees. f.* 317, 318. *Fries. exs. no.* 45. *Mich. t.* 55, *f.* 1. *Hoffm. V.C. t.* 3, *f.* 1. *Fl. Dan. t.* 2037, *f.* 1. *Sph. crustacea, Sow. t.* 372, *f.* 11, *t.* 373, *f.* 10. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 48. *Sph. confluens, Fckl. exs. no.* 960.

On dead wood. [United States.]

At first clothed with thin, cinereous, mealy down, at length naked, 2-3 in or more long. Sporidia (·0004-·0005 in.) ·01-·0125 m.m.

2394. Hypoxylon udum. *Fr.* "Emergent Hypoxylon."

Spermogonia.—Perithecia minute; spermatea cylindrical, obtuse, somewhat curved, hyaline.

Ascophore.—Short, determinate, emergent, black; perithecia sub-ovate; ostiola obtuse, unequal; sporidia almond-shaped, or oblong-elliptic, olive-green, then dark, clear, transparent brown.—*Fr. S.VS. p.* 384. *Sph. uda, Fr. S.M.* ii. *p.* 358. *Pers. Syn. t.* i. *f.* 11-13. *Fries. exs. no.* 324. *Eng. Fl.* v. *p.* 243. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 61, 62. *Hypoxylon semi-immersum, Fckl. exs. no.* 2177.

On rotten branches. [Mid. Carolina.]

Sub-elliptic, parallel, 2-3 lines long, always furnished with a circumscribing black line. Very much resembling small scattered specimens of *H. serpens*. Sporidia (·0006-·001 in.) ·015-·025 m.m.

Gen. **344. NUMMULARIA,** Tul.

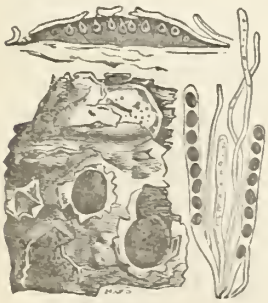


Fig. 389.

Stroma discoid. Perithecia immersed, in separate cells. Sporidia ovate or ovato-globose, straight, simple, dark-coloured, excluded in tendrils.—*Tul. Carp.* ii. *p.* 42. (*Fig.* 380.)

2395. Nummularia Bulliardi. *Tul.* "Bulliard's Nummularia."

Determinate, quite plane, continuous, externally and internally black; perithecia immersed, ovate ostiola globose, slightly prominent; sporidia round, or elliptical, brown then black.—*Tul. Carp.* ii. *p.* 42, *t.* v. *f.* 11-19. *Hypoxylon nummularium, Curr. Linn. Trans.* xxii. *t.* 46, *f.* 59. *Fckl. exs. no.* 1062. *Bull. t.* 468, *f.* 4. *Berk. Outl. p.* 386. *Sph. nummularia, Fr. S.M.* ii. *p.* 348. *Eng. Fl.* v. *p.* 240. *S. macula, Tode. f.* 106. *S. diffusa, Sow. t.* 373. *Schm. M.H. t.* i. *f.* 16. *Moug. exs. no.* 374.

On wood and bark. [United States.]

Hard, orbicular, elliptic or longitudinally effused from the confluence of one or more individuals, ½-2 in. broad, 1 line thick, separable from the matrix, even, very slightly papillated under a lens; ostiola distant; perithecia large, immersed.—*Fries.* (*Fig.* 380.)

Sporidia (·0004-·0006 in.) ·01-·015 m.m.

Gen **345. EUTYPA,** Tul.

Fig. 381.

Stroma fused with the matrix. Perithecia immersed, sometimes in the matrix, papillate; paraphyses few; sporidia clustered, linear and curved, or ovate and straight, simple, pale (sometimes dark coloured).—*Tul. Carp.* ii. *p.* 52. (*Fig.* 381.)

* Sporidia hyaline.

2396. Eutypa Acharii. *Tul.* "Acharius' Eutypa."

Scattered; perithecia immersed, globose; ostiola proceeding from a black spot, minute, convex, slightly prominent, at length umbilicate; sporidia biseriate, colourless, slightly curved.—*Tul. Carp.* ii. *p.* 53. *t.* 7, *fig.* 8-20. *Sphæria eutypa, Fr. S.M.* ii. *p.* 478. *Fries. exs. no.* 15, 348. *Eng. Fl.* v. *p.* 267. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 73. *Berk. exs. no.* 178. *S. decomponens, Sow. t.* 217. *Eutypa maura, Fckl. exs. no.* 1050.

On dead branches. Common.

Very much resembling *Eutypa lata.* Sporidia (·0002-·0003 in.) ·005-·0075 m.m. (*Fig.* 381.)

2397. Eutypa lata. *Tul.* "Broad Eutypa."

Broadly effused, emergent, unequal; perithecia close sunk in the wood, covered with a thin black stroma; ostiola slightly prominent, conical; sporidia crowded, yellowish in a mass, almost colourless when single, curved obtuse at the ends.—*Tul. Carp.* ii. *p.* 56. *Fckl. exs. no.* 1046. *Diatrype lata, Curr. Linn. Trans.* xxii. *t.* 47, *f.* 110. *S. lata, Fr. S.M.* ii. *p.* 369. *Fries exs. no.* 112. *Moug. exs. no.* 568. *Eng. Fl.* v. *p.* 245. *Hoffm. V.C.* i. *t.* 4, *f.* 3.

On wood, dry branches, &c. Common. [United States.]

Generally effused for some inches, but sometimes interrupted; staining the wood on which it grows dull black; rough with the slightly prominent shining ostiola.—*M.J.B.*

Sporidia (·0002-·0004 in.) ·005-·01 m.m.

2398. Eutypa flavo-virens. *Tul.* "Yellow-green Eutypa."

Unequal, rugose, black within, pulverulent, yellow-green; perithecia globose; ostiola rather prominent, punctiform; sporidia crowded, yellowish, curved—*Tul. Carp.* ii. *p.* 57, *t.* 7, *f.* 1-7. *Fckl. exs. no.* 1049. *Diatrype flavo-virens, Fr. S.V.S. p.* 385. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 65. *Rabh. exs. no.* 48. *S. flavo-virens. Fr. S.M.* ii. *p.* 357. *Moug. exs. no.* 375. *Fries. exs. no.* 222. *Hoffm. V.C.* i. *t.* 2, *f.* 4. *Grev. t.* 320. *Eng. Fl.* v. *p.* 240. *S. multiceps, Sow. t.* 394. *f.* 8. *Fckl. exs. no.* 1825. *var.* β.

On dead branches or naked wood.

Variable, but easily distinguished by the colour of the stroma. Sporidia (·0003 in.) ·0075 m.m.

2399. Eutypa spinosa. *Tul.* "Spiny Eutypa."

Very widely effused, emergent, jet black; perithecia at length connate; ostiola spinous, thick, four-sided, sulcate; sporidia almost colourless, curved, rounded or acute.—*Tul. Carp.* ii *p.* 59. *Fckl. exs. no.* 1050. *Sphæria spinosa, Pers. Syn. t.* 2, *f.* 9-12. *Moug. exs. no.* 376. *Fr. S.M.* ii. *p.* 368. *Eng. Fl.* v. *p.* 244. *Fries. exs. no.* 11. *Fl. Dan. t.* 2038, *f.* 2. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 108.

On hard wood. [Mid. & Up. Carolina.]

Spreading over the wood for a great space, and staining it black; when young immersed, scabrous, villous, rugose; perithecia almost free, covered with a thin crust; when old sub-emergent, remarkable for its large prominent, pyramidal, or irregular, always rugged ostiola. Perithecia ovato-globose, rather large, joined by a thin crust.—*Fries.*

Sporidia (·0003 in.) ·0075 m.m.

2400. Eutypa leioplaca. *Fr.* "Interrupted Eutypa."

Emergent, interrupted, even, black, of the same colour within; perithecia close; ostiola very small, at length umbilicate; sporidia biseriate, curved, of a pale yellowish tinge.—(*Not Fckl. exs. no.* 1047.) *Diatrype leioplaca, Fr. S.V.S. p.* 385. *Curr Linn. Trans.* xxii. *t.* 47, *f.* 101. *S. leioplaca, Fr. S.M.* ii. *p.* 370. *Fries exs. no.* 112. *B. Eng. Fl.* v. *p.* 245. *S. immersa, Sow. t.* 374, *f.* 1.

On wood and dry branches. [Low. Carolina.]

Distinguishable by its interrupted mode of growth more even surface, and far more minute ostiola, from *E. lata*. Sporidia (·0004 in.) ·01 m.m.

2401. Eutypa scabrosa. *Fckl.* "Rough Eutypa."

Conidia.—Apical on brownish threads of the hyphasma, ovate, brown.—*Fckl. exs. no.* 1045.

Ascophore.—Emergent or superficial, blackish; tubercles subrotund, stipate, confluent in a broad crust; ostiola conical, rough; asci stipitate; sporidia cylindrical curved, simple, pale brownish. —*Fckl. Sym. Myc. p.* 215. *Diatrype scabrosa, Fr. S.V.S. p.* 385. *Sph. scabrosa, Fr. S.M.* ii. *p.* 360. *Berk. Ann. N.H. no.* 171. *Fckl. exs. no.* 1039. *Hypoxylon scabrosum, Bull, t.* 468, *f.* 5. *Valsa scabrosa, Nke. Pyr. Germ. p.* 138.

On maple.

Seated on a broadly effused crust, at first subcontinuous, soon cracked and tuberculose; tubercles subrotund, irregular, rather prominent.

2402. Eutypa rhodi. *Fckl.* "Rose Eutypa."

Stroma effused, maculæform, determinate, circumscribed by a black line; perithecia small, globose or depressed; ostiola, minute, punctiform, slightly prominent, pierced; asci narrowly clavate, stipitate; sporidia cylindrical curved, simple, nearly colourless, with a brownish tinge.—*Fckl. Sym. Myc. p.* 213. *Valsa rhodi, Nke. Pyr. Germ.* i. *p.* 148.

On *Rosa canina*. Shere. (Dr. Capron.)

Apparently quite distinct from its near allies.

* Sporidia coloured.

2403. Eutypa decipiens. *Tul.* "Deceptive Eutypa."

Effused, perithecia ovate-oblong, immersed, covered with grey-black bark; ostiola hemispherical, rugose, hollowed out; sporidia elliptical, variable, sometimes slightly curved, rather

dark brown.—*Tul Carp.* ii. *p.* 60, *t.* 8, *f.* 1-9. *Diatrype decipiens*, *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 196. *S. decipiens*, *D.C. Fl. Fr.* ii. *p.* 285. *Eng. Fl.* v. *p.* 246. *Rabh. F.E. no.* 144. *S. floriformis*, *Sow. t.* 297.

On hornbeam.

Perithecia ovate-oblong, with a rather long neck, surmounted by the beautifully radiato-rugose, more or less deeply umbilicate ostiola.—*M. J. B.* Sporidia (·0003 in.) ·0075 m.m.

2404. Eutypa elevata. *B.* "Many spored Eutypa."

Elongated, emergent, somewhat cracked; perithecia scattered, globose, middle-sized, with a conical neck, immersed in the wood; ostiola punctiform; asci clavate; sporidia numerous, opaque, sausage-shaped.—*Diatrype elevata*, *B. & Br. Ann. N.H. no.* 844. *Sphæria elevata*, *Berk. Hook. Jour.* (1845), *p.* 298. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 109.

On dead twigs of *Euonymus*. Jan. Batheaston.

Sporidia (·0003-·00035 in.) ·0075-·0085 m.m. long (B. & Br.), (·0006-·0007 in.) ·015-·017 m.m. (F.C.)

Forming elongated, raised, irregular, black, or greyish spots, ½ line thick, ½-1 line long. Perithecia globose, middle-sized, with a conical neck, immersed in the wood, scattered, covered with a thin black stroma; ostiola punctiform, not very visible externally; asci clavate, containing an indefinite number of curved opaque sporidia, which are far larger than in the neighbouring species, resembling *Eutypa lata*, but distinguished by the much larger opaque sporidia which are contained in clavate asci.—*M. J. B.*

Gen. **346.** **MELOGRAMMA**, Tul.

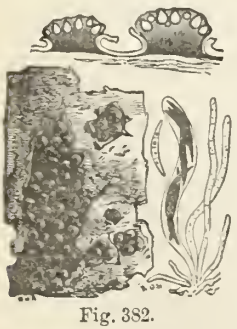


Fig. 382.

Stroma subglobose, depressed, cellular; perithecia immersed, adnate; sporidia linear, lanceolate, or ovate, pluriocular or simple.—*Tul. Carp.* ii. *p.* 81. *Fr. S.V.S. p.* 386. (*Fig.* 382.)

2405. Melogramma Bulliardi. *Tul.* "Bulliard's Melogramma."

Subrotund, obconical, dingy, blackish; perithecia confluent, rather prominent; sporidia biseriate, linear-lanceolate or fusiform, straight or slightly arcuate, at length quadrilocular, ultimate cells at either end hyaline.—*Tul. Carp.* ii. *p.* 81, *t.* xi. *f.* 1-9. *Melogramma fusisporium*, *Fr. S.V.S. p.* 386. *Berk. Outl. p.* 391. *Sph.*

fusispora, Duby. Klotsch. exs. 1832. *Bot. Zeit.* (1854) *p.* 204. *Sph. melogramma, Fr. S.M.* ii. *p.* 420. *Desm. exs. no.* 971. *Fckl. exs. no.* 1033. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 194. *Moug. exs. no.* 274. *Melogramma vagans, De Not, Micr. It.* ix. *t.* 16. *Variolaria melogramma, Bull. t.* 492, *f.* 1.

On hornbeam bark.

Sporidia ·04-·05 m.m. long, ·004-·006 m.m. broad. (·0014-·002 in. long.—*Currey.*) (*Fig.* 382.)

2406. Melogramma homaleum. *Fr.*

We know of no published description of this species. The habit is very much like a *Cucurbitaria.* Asci cylindrical; sporidia uniseriate, triseptate, with an occasional transverse septum, constricted, brown.—*Fr. S.V.S. p.* 386. *Fr. exs. no.* 382. *Berk. Outl. p.* 391.

On dead bark.

The above description of the fruit is from a fragment of Fries. exs. no. 382, kindly furnished by the Rev. M. J. Berkeley. Sporidia (·00037 × ·00012 in.) ·008 × ·003 m.m.

Melogramma oligosporum, B. & Br. see *Cucurbitaria macrospora.* Tul.

2407. Melogramma rubro-notatum. *B. & Br.* "Brick red Melogramma."

Pycnidia.—Perithecia rather crowded; stylospores small, elliptical, hyaline.—*Phoma ulmicola, Berk. Hook. Journ.* v. (1853) *t.* 3, *f.* 3. *Ann. N.H.* xiii. (1854), *no.* 737.

Ascophore.—Perithecia confluent; ostiola papillæform, brick-red; asci linear; sporidia oblong, triseptate.—*B. & Br. Ann. N.H. no.* 894. *Massaria lateritia, Tul. Carp.* ii. *p.* 243.

On elm bark. Dec. King's Cliffe.

At first bursting through the cuticle and forming distinct round patches, which, however, at length run together into a nearly uniform mass; perithecia confluent; ostiolum papillæform, perforated, the perforation surrounded with brick-red meal; asci linear; sporidia uniseriate, oblong (·0006 in.) ·015 m.m. long, triseptate. When the red meal is rubbed off it looks as if it belonged to the tribe *Concrescentes.*—*B. & Br.*

2408. Melogramma gyrosum. *Tul.* "Orange Melogramma."

Spermogonia.—Spermatia very minute, ovate-cylindrical, simple.

Ascophore.—Subrotund, confluent, orange-vermillion; stroma yellowish; perithecia gyrose, pulverulent, at length slightly pro-

minent; sporidia linear-lanceolate.—*Tul. Carp.* ii. *p.* 87. *Endothia gyrosa, Fr. S.V.S. p.* 385. *Berk. Outl. p.* 384. *Sphæria gyrosa, Schwein. Syn. Car. Eng. Fl.* v. *p.* 254. *Sphæria fluens, Sow. t.* 438. *Sphæria radicalis, Rabh. exs. no.* 254.

On bark. New Forest. [United States.]

Sporidia ·0065 m.m. long, ·002 m.m. broad.—*Tul.*

2409. Melogramma gastrinum. *Tul.* "Swollen Melogramma."

Ventricose, erumpent; stroma pallid; perithecia scattered irregularly; necks included; disc nearly plane, black; sporidia oblong or elliptical, at first pale-green, then dark-brown, with 1-3 nuclei.—*Tul. Carp.* ii. *p.* 89. *Hypoxylon gastrinum, Berk. Outl. p.* 386. *Sph. gastrina, Fr. S.M.* ii. *p.* 379. *S. irregularis, Sow. t.* 374, *f.* 9. *Curr. Linn. Trans.* xxii *t.* 47, *f.* 96.

On elm. Autumn—Spring. [Up. Carolina.]

Sporidia (·0004 in.) ·01 m.m.

Gen. **347.** **POLYSTIGMA,** Pers.

Fig. 383.

Epiphyllous. Perithecia globose, immersed in a fleshy stroma; sporidia ovate, simple.—*Tul. Carp.* iii. *p.* 75. *Bon. Handb. p.* 55. (*Fig.* 383.)

2410. Polystigma rubrum. *Pers.* "Red Polystigma."

Hypophyllous, orbicular, bright-red, at length red-brown; cells immersed, red; ostiola subimmersed; spermatia linear, curved at the tips; asci obovate-clavate; sporidia elliptical, obtuse, straight, simple.—*D. Cand. Mem. Mus. t.* 6, *f.* 7. *Tul. Carp.* ii. *p.* 76, *t.* viii. *f.* 10-20. *Fckl. Sym. Myc. p.* 222. *Cooke exs. no.* 182. *Dothidea rubra, Fr. S.M.* ii. *p.* 553. *Fries exs no.* 191. *Eng. Fl.* v. *p.* 286. *Xyloma rubrum, Pers. Syn. p.* 103. *Purt. t.* 33. *Moug. exs. no.* 270. *Grev. t.* 120. *Baxt. exs. no.* 32. *Fckl. exs. no.* 1003.

On living sloe leaves. Summer and Autumn. Common. [Mid. Carolina.]

Spermatia ·03 m.m. Sporidia ·01 by ·006 m.m.—*Tul.* (*Fig.* 383).

2411. Polystigma fulvum. *D.C.* "Tawny Polystigma."

Hypophyllous, somewhat angular, tawny ; cells immersed, of the same colour; ostiola immersed; spermatia and sporidia ?—*DeCand. Mem Mus. t.* 6, *f.* 8. *Tul. Carp.* ii. *p.* 79. *Fckl. Sym. Myc. p.* 222. *Dothidea fulva, Fr. S.M.* ii. *p.* 554. *Fries exs. no.* 241. *Eng. Fl.* v. *p.* 286. *Moug. exs. no.* 271. *Fckl. exs. no.* 1826.

On living leaves of *Prunus padus.* Scotland.

Gen. **348.** **DOTHIDEA,** Fr.

Fig. 384.

Perithecia nonc. Nucleus contained in globose cavities immersed in the stroma, with a decided neck, and papillæform ostiolum. Sporidia simple or septate.—*Fr. S.M.* ii. *p.* 548. *Tul. Carp.* ii. *p.* 65. (*Fig.* 384.)

Section 1. Foliicolæ.
Section 2. Caulicolæ.
Section 3. Lichenicolæ.

Sect. 1. *Foliicolæ.*

2412. Dothidea ulmi. *Fr.* "Elm-leaf Dothidea."

Spermogonia.—Aecording to some authors=*Septoria Ulmi, Fr.* (See no. 1297, ante.)

Pycnidia.—Forming small, irregularly, stellate, aggregate tubercles; stylospores broadly ovate, on short sporophores, tomiparous.—*Piggotia astroidea, B. & Br. Ann. N.H. no.* 503. (See no. 1296, ante.)

Ascophore.—Epiphyllous, roundish, confluent, convex, greyish-black, black within ; cells white ; ostiola granulæform ; asci cylindrical, stipitate ; sporidia simple, ovate-oblong, hyaline.—*Fr. S.M.* ii. *p.* 555. *Eng. Fl.* v. *p.* 286. *Grev. t.* 200, *f.* 1. *Fckl. exs. no.* 1013. *Cooke exs. no.* 184. *Berk. exs. no.* 192. *Sow. t.* 374, *f.* 3. *Phyllachora ulmi, Fckl. Sym. Myc. p.* 218.

On elm leaves. Common.

The asci are not matured until spring, after the leaves have laid upon the ground through the winter.

2413. Dothidea betulina. *Fr.* "Birch-leaf Dothidea."

Epiphyllous, angular, but irregular, tuberculated, shining black, black within; cells white; sporidia oblong ovate, obtuse, straight, uniseptate, very pale yellow.—*Fr. S.M.* ii. *p.* 554. *Fries exs. no.* 144. *Grev. t.* 200, *f.* 2. *Fckl. exs. no.* 1015. *Xyloma, D.C. Mem. Mus. t.* 3, *f.* 1. *Moug. exs. no.* 370. *Wahl. Fl. Lap. t.* 30, *f.* 3. *Phyllachora betulina, Fckl. Sym. Myc. p.* 217.

On living birch leaves.

2414. Dothidea heraclei. *Fr.* "Hog-weed Dothidea."

Spermogonia.—According to some authors=*Septoria heraclei. Lib. exs. no.* 51. *Fckl. exs. no.* 515. (See no. 1298, ante.)

Ascophore.—Amphigenous, confluent, angular, rugoso-tuberculate, opaque, black, within blackish; cells white; sporidia?—*Fr. S.M.* ii. *p.* 556. *Eng. Fl.* v. *p.* 287. *Fckl. exs. no.* 792. *Phyllachora heraclei, Fckl. Sym. Myc. p.* 219.

On living leaves of *Heracleum spondylium.*

2415. Dothidea podagrariæ. *Fr.* "Gout-weed Dothidea."

Spermogonia.—According to some authors=*Septoria podagrariæ, Lasch. Fckl. exs. no.* 514. *Sept. ægopodii, Desm. exs. no.* 616. *Cooke exs. no.* 146. (See no. 1302 ante.)

Ascophore.—Hypophyllous, simple, or connate, irregular, rather shining, black, papillate, seated on an indeterminate black crust; sporidia?—*Fr. S.M.* ii. *p.* 556. *Fries exs. no.* 192. *Fckl. exs. no.* 1024. *Phyllachora Ægopodii, Fckl. Sym. Myc. p.* 218.

On living leaves of *Ægopodium podagraria.*

2416. Dothidea trifolii. *Fr.* "Clover Dothidea."

Conidia.—According to some authors=*Polythrincium Trifolii. Kze.* (See no. 1743.)

Spermogonia.—Spermatia very minute, cylindrical, curved.—*Fckl. Sym. Myc.* 218. *Fckl. exs. no.* 1022.

Ascophore.—Covered, subrotund, rather prominent, tuberculose, rugulose, black; cells immersed in a pulverulent stroma; sporidia?—*Fr. S.M.* ii. *p.* 435. *Eng. Fl.* v. *p.* 257. *Baxt. exs. no.* 84. *Phyllachora trifolii, Fckl. Sym. Myc. p.* 218.

On living clover leaves. Common.

2417. Dothidea junci. *Fr.* "Rush Dothidea."

Spermogonia.—Oblong, irregular, flat, shining; disc tawny; spermatia?—*Leptostroma juncinum, Fr. exs. no.* 330. *Berk. Ann. N.H. no.* 108. *Berk. exs. no.* 197.

Ascophore.—Covered, at length bursting by longitudinal chinks between the fibres, tuberculated; cells in rows, black within, at first immersed in a black stroma; sporidia biseriate, yellowish-brown, linear-acuminate, triseptate.—*Fr. S.V.S. p.* 387. *Fckl. exs. no.* 1020. *Berk. exs. no.* 35. *Phyllachora junci, Fckl. Sym. Myc. p.* 216. *Sphæria junci, Fr. S.M.* ii. *p.* 428. *Eng. Fl.* v. *p.* 256. *Fries exs. no.* 5. *Moug. exs. no.* 964. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 199. *Cooke exs. no.* 243.

On stems of rushes. Common.

Sporidia (·0012) ·03 m.m. long. According to Fuckel the sporidia are simple, uniseriate, and ovate.

2418. Dothidea graminis. *Fr.* "Grass Dothidea."

Covered, unequal, rugulose, rather prominent, black; cells disposed indistinctly in rows, latent, as well as the ostiola; sporidia colourless, broadly elliptical, frequently with a large globose nucleus.—*Fr. S.V.S. p.* 387. *Phyllachora graminis. Fckl. Sym. Myc. p.* 216. *Sph. graminis, Pers. Syn. p.* 30. *Fr. S.M.* ii. *p.* 434. *Eng. Fl.* v. *p.* 257. *Nees. f.* 314. *Fries. exs. no.* 282. *Moug. exs. no.* 876. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 211. *Fckl. exs. no.* 1018. *Cooke exs. no.* 185.

On half dead leaves of grass. Common.

2419. Dothidea caricis. *Fr.* "Sedge Dothidea."

Covered, unequal, confluent, black, tuberculose from the prominent cells; sporidia?—*Fr. S.V.S. p.* 387. *Sph. caricis, Fr. S.M.* ii. *p.* 435. *B. & Br. Ann. N.H. no.* 604.

On leaves of *Carices*. Forfarshire.

2420. Dothidea Johnstoni. *B. & Br.* "Johnston's Dothidea."

Spots minute, orbicular; cells concentric, half-free; asci short; sporidia obovate-oblong, uniseptate.—*B. & Br. Ann. N.H. no.* 661.

On leaves of *Epilobium*. Berwick.

Forming little black spots about a line broad, studded with concentric half-free cells, with a little round aperture; there are sometimes a few scattered short stiff brown hairs on the surface, occasionally converging over the orifice. Asci short, subcylindrical, generally rather thicker below; sporidia biseriate, obovato-oblong, at length pale-brown, uniseptate. Habit almost that of *Sphæria rumicis*.—*B. & Br.*

2421. Dothidea pteridis. *Fr.* "Bracken frond Dothidea."

Hypophyllous, following the veins, elongated, cinereous-black, opaque, internally black; ostiola minute, slightly prominent; asci clavate; sporidia elongated, triseptate, hyaline.—*Fr. S.M.* ii. *p.* 555. *Reb. t.* 1, *f.* 3. *Fries exs. no.* 67. *Schm. exs. no.* 2. *Cooke, Fern Book p.* 20, *fig.* 7-9. *Fckl. exs. no.* 1016. *Phyllachora pteridis, Fckl. Sym. Myc. p.* 218.

On fronds of *Pteris aquilina.*

Fuckel states that the spermogonia of this species will be found in *Fusidium pteridis*, Rabh. F.E. no. 389.

Sect. 2. *Caulicolæ.*

2422. Dothidea tetraspora. *B. & Br.* "Four-spored Dothidea."

Stroma pulvinate; cells immersed or subprominent; asci cylindrical, tetrasporous; sporidia uniseriate, uniseptate, obovate, constricted in the middle.—*B. & Br. Ann. N.H. no.* 899, *t.* 11, *f.* 39.

On dead twigs of *Daphne laureola* and *Ulex.* Feb. Mossburnford.

Stroma pulvinate, black, either quite even or studded with the projecting cells; asci cylindrical, containing four sporidia arranged in a single row; sporidia (·001-·0013 in.) ·025 ·03 m.m. long, obovate, uniseptate, yellow-brown, the lower articulation generally shorter and narrower; very rarely there is a third septum.—*B. & Br.*

2423. Dothidea melanops. *Tul.* "Beech Dothidea."

Microstylospores spermatia-like, narrowly cylindrical, straight; macrostylospores oblong-lanceolate.

Ascophore.—Rounded, irregular, plane or depressed, black, very smooth, bursting through stellate fissures in the bark. Asci large, oblong-cylindrical, very obtuse; sporidia subelliptic, a little constricted towards each end, pallid, granular or nucleate. —*Tul. Carp.* ii. *p.* 73, *t.* 10. *B. & Br. Ann. N.H.* (1866), *no.* 1179.

On beech. Jedburgh.

Sporidia (·0008 ·001 in.) ·025-·035 m.m. long (·0004-·00 5 in.), ·013-·016 m.m. broad.

2424. Dothidea ribesia. *Pers.* "Currant Dothidea."

Erumpent, subelliptic, depressed, black, of the same colour within; cells very small, white, seated near the surface; conidia

ovato-globose ; sporidia fusiform, straight, unequally two-celled. —*Tul. Carp.* ii. *p.* 67, *t.* ix. *Berk. exs. no.* 91. *Fckl. exs. no.* 1005. *Fr. S.M.* ii. *p.* 550. *Eng. Fl.* v. *p.* 285. *Fries exs. no.* 100. *Fckl. Sym. Myc. p.* 223. *Sph. ribesia, Pers. Syn. p.* 14. *Moug. exs. no.* 275. *Nees. f.* 312. *Stromatosphæria ribesia, Grev. Fl. Ed. p.* 357.

On dry branches of red currant and gooseberry. Common. [Mid. Carolina.]

Sporidia ·016-·022 m.m. long, ·0065 m.m. broad.—*Tul.* *(Fig.* 384.*)*

2425. Dothidea rosæ. *Fr.* "Rose Dothidea."

Subrotund, crumpenti-innate ; stroma pale brown ; perithecia globose, somewhat immersed, stuffed with white jelly ; sporidia crowded, colourless, broadly almond-shaped.—*Fr. S.V.S. p.* 386. *Fckl. Sym. Myc. p.* 223. *Berk. exs. no.* 32. *Fckl. exs. no.* 1008. *Cooke exs. no.* 235. *Sph. Dothidea, Fr. S.M.* ii. *p.* 424. *Eng. Fl.* v. 255. *Fries exs. no.* 308. *Moug. exs. no.* 971. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 190.

On living rose stems.

Forming irregular tubercles covered with the epidermis, which is cracked with irregular flexuous fissures. Sporidia (·0007-·0009 in.) ·017-·02 m.m.

2426. Dothidea striæformis. *Fr.* "Linear Dothidea."

Covered with the innate blackened epidermis, at length bursting in the midst, lanceolate, short, acute ; perithecia in rows, mouthless ; sporidia ?—*Fr. S.V.S. p.* 386. *Sph. striæformis, Fr. S.M.* ii. *p.* 428. *Fries. exs. no.* 195. *Eng. Fl.* v. *p.* 256.

On dead herbaceous stems.

2427. Dothidea filicina. *Fr.* "Braeken Dothidea."

Spermogonia.—Elongated, irregular, even, black, marked when perfect with an elevated longitudinal rib, at length separating entirely at the base ; spermatia ?—*Leptostroma filicinum, Fr. Obs.* i. *p.* 197. *Eng. Fl.* v. *p.* 297. *Moug. exs. no.* 476. *Cooke exs. no.* 334. *Sphæria pteridis, Sow. t.* 394, *f.* 10.

Ascophore.—Subinnate, parallel, confluent, shining, black, erumpent by parallel fissures ; stroma black ; cells connate, seriate ; asci cylindrical ; sporidia elliptical, constricted, uniseptate, hyaline.—*Fr. S.V.S. p.* 386. *Cooke exs. no.* 244. *Sphæria filicina, Fr. S.M.* ii. *p.* 427. *Eng. Fl.* v. *p.* 255. *Berk. exs. no.* 33. *Fries. exs. no.* 48. *Schm. exs. no.* 202. *Cooke Fern Book, p.* 21, *f.* 8-10. *Rhopographus filicinus, Fckl. Sym. Myc. p.* 219.

On stems of *Pteris aquilina*. Common.

According to Fuckel (*Sym. Myc. t.* vi. *f.* 31) the sporidia are triseptate, with a short hyaline appendage at either end.

Sect. 3. *Lichenicolæ.*

2428. Dothidea Piggotii. *B. & Br.* "Lichen Dothidea."

Orbicular, innate, surface papillate with the tips of the cells; asci short, clavate; sporidia biseriate, obovate or cymbiform triseptate.—*B. & Br. Ann. N.H. no.* 660. *Sphæria homostegia, Nyl. Flor.* (1857), *p.* 688. *Homostegia adusta, Fckl. Sym. Myc. p.* 224. *Fckl. exs. no.* 953.

On *Parmelia saxatilis*. Aug. Wales.

Forming little patches about a line broad completely adnate with the thallus; surface opaque, black, papillate with the protruding tips of the semi-immersed cells, whose walls are black, but separated from each other by pellucid vertical cells running down below into hyaline subhexagonal cells with thick walls. Asci short, broad, subclavate; sporidia brown, biseriate, obovate, cymbiform, slightly curved, triseptate, very rarely quadriseptate.—*B. & Br.*

Dr. Lauder Lindsay has found a *Dothidea* somewhat resembling this externally, but much smaller, on a *Parmelia*. The fruit was immature, the short asci being filled with granules. The patches were about one-third the size of those in *D. Piggotii*.

*** c.** *Valsei.*

Stroma determinate, verrucæform. Perithecia immersed in stroma	*Diatrype.*
Perithecia circinating, ending in a disc	*Valsa.*
Perithecia circinating. Conidia in a black mass, often oozing out	*Melanconis.*

Gen. **349.** **DIATRYPE,** Fr.

Fig. 385.

Stroma determinate, verrucæform; peritheeia immersed in the stroma; sporidia hyaline, or coloured.—*Fr. Berk. Outl. p.* 387. (*Fig.* 385.)

Section 1. Asci many-spored	*Diatrypella.*
Section 2. Asci eight-spored	*Diatrype genuina.*

Sect. 1. *Diatrypella*—Asci many spored.

2429. Diatrype quercina. *Tul.* "Oak Diatrype."

Perithecia 8-15 in a group, black; ostiola ovate, quadrisulcate; asci linear-clavate; sporidia numerous, yellowish in a mass, sausage-shaped, and colourless when free.—*Tul. Carp.* ii. *p.* 98, *t.* xii. *f.* 1-15 (*not B. & Br. nor Currey*). *Rabh. exs. no.* 319 *and* 635. *Diatrypella quercina, Cooke exs. no.* 242. *Sferiacei Ital. p.* 28. *Sphæria quercina, Pers. Syn. p.* 24, *t.* 1, *f.* 7 *b. Desm. exs. no.* 1725. *Stromatosphæria quercina, Grev. Fl. Ed. p.* 358. *Microstoma enteroleucum, Fckl. exs. no.* 1037. *Diatrypella Rouselii, De Not. Sfer. Ital. t.* 32. (*Fig.* 385.)

On oak branches. Common. [Mid. Carolina.]

2430. Diatrype aspera. *Fr.* "Rough Diatrype."

Orbicular or angular, convex, black; perithecia attenuated into a slender neck, covered with a dirty-white stroma; ostiola conico-cylindrical; asci clavate; sporidia numerous, curved, rounded at the ends, without nuclei.—*Hoffm. Icon.* iii. *t.* 18, *f.* 3. *Fckl. exs. no.* 2057. *Fr. S. V. S. p.* 385. *S. aspera, Fr. S. M.* ii. *p.* 354. *Eng. Fl.* v. *p.* 242. *Diatrypella aspera, Fckl. Sym. Myc. p.* 232.

On branches of oak.

Very much resembling *D. verrucæformis*, but the stroma is dirty-white, the ostiola more prominent, and the neck, instead of being short, attenuated.

2431. Diatrype favacea. *Fr.* "Birch Diatrype."

Irregular, black; perithecia oblong-ovate, with a short neck covered with the thin dirty-white stroma; ostiola rather prominent, convexo-subrotund; asci clavate; sporidia numerous, curved, rounded at the ends without nuclei.—*Fr. S. V. S. p.* 385. *Fckl. exs. no.* 1040. *S. favacea, Fr. Obs.* ii. *t.* 8, *f.* 5. *S. M.* ii. *p.* 354. *Eng. Fl.* v. *p.* 242. *Fries. exs. no.* 306. *Berk. Mag. Zool & Bot. no.* 17. *Diatrypella favacea, De Not. Schema*, 28.

On birch, yet covered with the bark. [Mid. Carolina.]

Sometimes orbicular, sometimes irregular from several individuals being confluent, prominent, 2-4 lines or more broad, at first pale wood-colour. Perithecia disposed indistinctly in two layers, their bases subconnate, apices distinct covered with a thin stroma, which in the old state is obliterated; base circumscribed by a fine black line.—*Fries.*

2432. Diatrype verrucæformis. *Fr.* "Warty Diatrype."

Angular, convex, rugose, black, nearly of the same colour within, circumscribed below; perithecia ovate, with a short neck; asci fusiform; sporidia numerous, crowded, yellowish in the mass, curved, rounded at the ends, usually nucleate.—*Fr. S.V.S. p.* 385. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 81. *Sph. verrucæformis. Fr. S.M.* ii. *p.* 355. *Fries. exs. no.* 74. *Moug. exs. no.* 867. *Eng. Fl.* v. *p.* 242. *Microstoma verrucæformis, Fckl. exs. no.* 1036. *S. parallela, Sow. t.* 391, *f.* 4. *Microstoma vulgare, Rabh. exs. no.* 253. *Diatrypella verrucæformis, Fckl. Sym. Myc. p.* 232.

On branches of hazel, beech, &c. Common.

[United States.]

Bursting through the bark by the laciniæ of which it is surrounded, 1-1½ line broad, black, brownish within, the orifices of the perithecia more or less distinct.—*M.J.B.*

Sporidia (·0004 in.) ·01 m.m. long.

2433. Diatrype angulata. *Fr.* "Angular Diatrype."

Loosely circumscribed; stroma cortical; perithecia few, crowded in the centre; disc plane, black; ostiola exceedingly small; asci narrowly clavate, stipitate, polysporous; sporidia, cylindrical, unicellular, curved, small, pale.—*Valsa angulata, Fr. S.V.S. p.* 411. *B. & Br. Ann. N.H. no.* 848.* *S. angulata, Fr. S.M.* ii. *p.* 390. *Fries. exs. no.* 72. *Eng. Fl.* v. *p.* 248. *Diatrypella angulata. De Not. Schema. p.* 28. *Rabh. F.E. no.* 1022. *Fckl. exs. no.* 2058.

On branches of beech, laburnum, birch, and lime.

In the early stage the stroma is white. Desmazières finds in Fries. exs. no. 72, sausage-shaped sporidia.—*B. & Br.*

Sect. 2. *Diatrype genuina*—octosporous.

A. Sporidia sausage-shaped.

2434. Diatrype stigma. *Fr.* "Effused Diatrype."

Spermogonia.—Spermatia cylindrical, obtuse, slightly curved, oozing forth in reddish or orange tendrils.—*Myxosporium croceum, Link. Sp. Pl. Nemaspora microspora. Desm. Ann. Sc. Nat.* xix. *(1830), p.* 271. *Tul. Ann. Sc. Nat.* v. *(1856), p.* 117.

Ascophore.—Effused, often nearly surrounding the branch, flat, even, at length black; ostiola nearly plane, sub-immersed; sporidia yellowish in the mass, almost colourless when single, slightly curved.—*Sph. stigma, Hoffm. V.C.* i. *t.* 2, *f.* 2. *Moug. exs.*

no. 372, 373. *Fr. S.M.* ii. *p.* 350. *Fries. exs. no.* 46. *Eng. Fl.* v. *p.* 241. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 82. *Stromatosphæria stigma, Grev. t.* 223, *f.* 2. *S. decorticans, Sow. t.* 137. *Stictosphæria Hoffmanni, Tul. Carp.* ii. *p.* 50, *t.* 6. *Cooke exs. no.* 240. *Fckl. exs.* 1043. *Eutypa leioplaca, Fckl. exs. no.* 1047.

On sticks. Common. [United States.]

Many inches long, throwing off the cuticle, varying with the ostiola, sunk in a little pit, and prominent. At first brownish, then black, generally cracked transversely. Sporidia (·0004 in.) ·01 m.m.

2435. Diatrype disciformis. *Fr.* "Discoid Diatrype."

Orbicular, plane, even, black, white within; perithecia attenuated into a slender neck; ostiola punctiform; sporidia biseriate or crowded, yellowish in a mass, almost colourless when detached, slightly curved.—*Fr. S.V.S. p.* 385. *Tul. Carp.* ii. *p.* 102. *S. disciformis, Hoffm. V.C.* i. *t.* 4, *f.* 1. *Moug. exs. no.* 80. *Fr. S.M.* ii. *p.* 353. *Cooke exs. no.* 389. *Fries exs. no.* 71. *Eng. Fl.* v. *p.* 241. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 64. *Stromatosphæria disciformis, Grev. t.* 314. *Sph. depressa, Sow. t.* 216.

On dry branches of beech. Common. [Mid. Carolina.]

Abont 2 lines broad, at first reddish, more constantly round than *D. bullata*, flat or depressed, sometimes waved, not at all convex. Perithecia more oblong. Ostiola prominent, or immersed. Sporidia (·0002-·0003 in.) ·005-·0075 m.m.

2436. Diatrype bullata. *Fr.* "Bullate Diatrype."

Erumpent, convexo-plane, oval, or reniform, black, white within, papillated with the ostiola; sporidia crowded, cylindrical, obtuse, slightly curved.—*Fr. S.V.S. p.* 385. *Tul. Carp.* ii. *p.* 103. *Rabh. exs. no.* 47. *Sph. bullata, Hoffm. V.C. t.* 2. *f.* 1. *Pers. Ic. Pict. t.* 3, *f.* 6, 7. *Fr. S.M.* ii. *p.* 349. *Eng. Fl.* v. *p.* 241. *Fries. exs. no.* 342. *Moug. exs. no.* 866. *Sphæria placenta, Tode. f.* 97. *S. depressa, Bolt. t.* 122, *f.* 1. *Bull. t.* 432, *f.* 2 ?

On willow branches.

2-3 lines broad, gently convex, brownish, then black; perithecia in a single row, globose, often altered in form by mutual pressure, resting upon the matrix. Ostiola projecting slightly, often stellate. When cut off horizontally beneath the stroma a distinct black line is seen upon the wood. Sporidia (·0002-·0003 in.) ·005-·0075 m.m.

2437. Diatrype hystrix. *Fr.* "Hedge hog Sphæria."

Bursting forth transversely, depressed, oval, rather plane, black, brownish within; rostella distinct, somewhat incrassated above; sporidia sausage-shaped, minute.—*Fr. Summ. V.S. p.*

385. *B. & Br. Ann. N.H. no.* 810 *(not Currey). Sph. hystrix, Tode. f.* 127. *Fr. S.M.* ii. *p.* 364. *Moug. exs. no.* 959. *Eng. Fl.* v. *p.* 244.

On sycamore branches. [Mid. Carolina.]

The pustule is brown within, but covered with a distinct black stroma. Sporidia (·0002 in.) ·005 m.m. long. This is clearly not the *Valsa longirostris* of Tulasne, nor the *Diatrype (Mamiania) hystrix* of De Notaris. Berkeley regards it as the *Sphæria hystrix* of Tode. We have seen no specimens.

2438. Diatrype corniculata. *B. & Br.* "Circumscribed Diatrype."

Innate, stroma whitish; conceptaculum black; perithecia decumbent; ostiola crowded, subcylindrical, distinct, even; asci clavate, containing eight sausage-shaped sporidia.—*B. & Br. Ann. N.H. no.* 845. *Sph. corniculata, Ehr. exs. no.* 300. *Fr. S.M.* ii. *p.* 584. *Nees. f.* 330. *Eng. Fl.* v. *p.* 247.

On dead branches. Mar. Lucknam.

Sporidia (·0004-·0005 in.) ·01-·0125 m.m. long, concealed beneath the epidermis, except the orifices, which are considerably exserted. Ostiola pretty constantly umbilicated.—*Grev.*

B. Sporidia uniseptate, hyaline.

2439. Diatrype varians. *Curr.* "Variable Diatrype."

Perithecia subglobose; ostiola conical, sometimes umbilicate at the apex, the masses penetrate the bark in long parallel lines; sporidia biseriate, colourless, obtuse, constricted in the centre, uniseptate, cymbiform laterally, variable in width.—*Curr. Linn. Trans.* xxii. *p.* 270, *t.* 46, *f.* 77. *B. & Br. Ann. N.H. no.* 834.

On dead twigs. June. Eltham.

The position of this species is considered doubtful. The bark in which the perithecia are immersed is scarcely at all changed. Sporidia (·0006 in.) ·015 m.m.

2440. Diatrype inæqualis. *Curr.* "Unequal Diatrype."

Perithecia subglobose; ostiola short and rugose, surface of the wood blackened and rugged; sporidia greenish, obtuse, constricted in the middle, uniseptate.—*Curr. Linn. Trans.* xxii. *t. f.* 79. *Cooke. exs. no.* 372. *B. & Br. Ann. N.H. no.* 837. *Diaporthe inæqualis, Nke. Pyr. Germ.* i. *p.* 285. *Sphæria Fuckelii, Fckl. exs. no.* 919.

On furze. Jan. Weybridge.

Sporidia (·0006 in.) ·015 m.m. long, uniseriate, almost colourless, but rather of a green tinge, obtuse, constricted in the middle, uniseptate, contents granular and nucleate. Perithecia sometimes scattered. The masses of perithecia surrounded by a black line.—*F.C.*

2441. Diatrype pyrrhocystis. *B. & Br.* "Brown Diatrype."

Irregular; disc plane or concave; ostiola black, punctate; stroma pallid; perithecia brown; sporidia elliptic, uniseptate, binucleate.—*B. & Br. Ann. N. H. no.* 841, *t.* 9, *f.* 10. *Cooke. exs. no.* 241. *Diaporthe pyrrhocystis, Fckl. Sym. Myc. p.* 204. *Dialytes decedens, Fckl exs. no.* 1983.

On hazel twigs. March.

Disc plane or concave, studded with the black shining ostiola. Asci clavate. Sporidia biseriate (·001 in.) ·025 m.m. long, elliptic, obtuse, or slightly pointed, uniseptate, slightly constricted, with two large nuclei. The brown perithecia, pallid stroma, and peculiar fruit are the characteristics of this species.—*B. & Br.*

2442. Diatrype incarcerata. *B. & Br.* "Rose Diatrype."

Immersed in the inner bark, casting off the cuticle; perithecia globose; ostiola conical, elongated; asci clavate; sporidia biseriate, oblong, acute at each end, constricted in the middle, uniseptate, quadri-nucleate.—*B. & Br. Ann. N.H. no.* 842.

On rose stems. Twycross.

Sporidia (·0005 in.) ·0125 m.m. long. Fruit exactly like that of *S. enteroleuca* of Currey.

C. Sporidia multi-nucleate, or multiseptate, hyaline.

2443. Diatrype undulata. *Fr.* "Waved Diatrype."

Effused, interrupted, waved, black, white within; ostiola rather prominent, subrotund; asci linear; sporidia uniseriate, subovate, pointed at one end, at length triseptate.—*S. undulata, Pers. Syn. p.* 21. *Moug. exs. no.* 371. *Fr. S.M.* ii. *p.* 350. *Grev. t.* 223, *f.* i.? *Eng. Fl.* v. *p.* 241. *B. & Br. Ann. N.H. no.* 831. *t.* 9, *f.* 9.

On dead branches.

Liable to be confounded with some states of *D. lata.* It may easily be distinguished by being erumpent; more commonly confounded with *D. stigma*, from which it differs in the fruit. Sporidia (·0004-·0007 in.) ·01-·0177 m.m. long.

2444. Diatrype strumella. *Fr.* "Currant Diatrype."

Bursting forth transversely, depressed, elliptic, nearly plane, black; stroma cortical; ostiola cylindrical, even; sporidia bi-

seriate, colourless, eliptico-acuminate, triseptate, sometimes slightly curved and constricted.—*Fr. S.V.S. p.* 385. *Fckl. exs. no.* 598. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 88. *Cooke exs, no.* 236. *S. strumella, Fr. S.M.* ii. *p.* 365. *Fries. exs. no.* 115. *Moug. exs. no.* 9, 60. *Eng. Fl.* v. *p.* 244. *Diaporthe strumella, Fckl. Sym. Myc. p.* 205.

On dry currant branches. Common. [United States.]

Sometimes it bursts through longitudinally. Sporidia (·0005-·0006 in.) ·0127-·015 m.m. long.

2445. Diatrype nucleata. *Curr.* "Nucleate Diatrype."

Perithecia ovate or globose, with rather short ostiola, collected in elongated irregular patches, surrounded by a dark line; sporidia linear-acuminate, constricted in the centre, quadrinucleate, colourless.—*Curr. Linn. Trans.* xxii. *p.* 270, *t.* 46, *f.* 76. *B. & Br. Ann. N. H. no.* 833.

On furze. Jan. Weybridge.

Sporidia (·0007-·0008 in.) ·0177-·02 m.m. long.

2446. Diatrype Badhami. *Curr.* "Badham's Diatrype."

Perithecia single and in masses, deeply imbedded in the wood; surface of inner bark much blackened; sporidia narrow, subelliptic, 3-4 nucleate, appendiculate at either end.—*Curr. Linn. Trans.* xxii. *t.* 46, *f.* 80. *B. & Br. Ann. N.H. no.* 836.

Sporidia (·0005-·0006 in.) ·0127-·015 m.m. long, biseriate, colourless, usually 4 nucleate, with a minute hyaline appendage at one end, which is invisible in the ascus, narrowly almond shaped. In habit and appearance resembling *D. inæqualis.*—*F.C.*

2447. Diatrype ferruginea. *Fr.* "Rusty Diatrype."

Bursting forth transversely, subrotund, unequal, black; stroma pulverulent, ferruginous; ostiola aggregate, round, spinulose; sporidia very long, linear, acuminate at the ends, colourless, with many nuclei.—*Fr. S.V.S. p.* 385. *Fckl. exs. no.* 1038. *S. ferruginea, Pers. Obs.* i. *t.* 5, *f.* 1, 2. *Moug. exs. no.* 377. *Fr. S.M.* ii. *p.* 363. *Fries. exs. no.* 305. *Eng. Fl.* v. *p.* 244. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 94. *Melogramma ferrugineum, Fckl. Sym. Myc. p.* 226.

On hazel branches. Common.

Ostiola even, very variable, sometimes almost obsolete, sometimes very long, slender, flexuous, equal, obsoletely circumscribed.—*Fries.*

2448. Diatrype frangulæ. *Pers.* "Buckthorn Diatrype."

Perithecia not circinating, united by a distinct crust or stroma; asci somewhat clavate; sporidia biseriate or crowded, colourless, elliptic-acuminate; endochrome quadripartite, sometimes only bipartite.—*Pers. Kew. Herb. Sphæria syngenesia, Fr. (in part). Curr. Linn. Trans.* xxii. *t.* 47, *f.* 119. *Diatrype syngenesia, Cooke Seem. Journ. Diaporthe syngenesia, Fckl. Sym. Myc. p.* 204. *Valsa appendiculosa, Fckl. exs. no.* 601. *Cooke exs. no.* 367.

On elder and *Rhamnus frangula.*

The sporidia are only quadrinucleate until mature, each extremity is often shortly appendiculate (·0005-·0006 in.) ·0127-·015 m.m. long.

D. Sporidia coloured.

2449. Diatrype dryophila. *Curr.* "Dark-spored oak Diatrype."

Perithecia ovate or subglobose; stroma dirty green, necks long, convergent, piercing the bark; asci linear; sporidia uniseriate, dark, oblong, narrow, sometimes binucleate.—*Curr. Linn. Trans.* xxii. *p.* 269, *t.* 46, *f.* 75. *B. & Br. Ann. N.H. no.* 832.

On dead oak twigs.

Sporidia (·0004-·0006 in.) ·01-·015 m.m. long. Perithecia surrounded by a dirty green stroma, rather deeply buried, piercing the bark by their long converging necks, forming compact, scattered black pustules. Sporidia uniseriate, narrowly elliptical, sub-acuminate at each end, at first of a pale greenish brown, then darker, eventually almost black, when young with two or more nuclei in each sporidium.—*F.C.*

2450. Diatrype denigrans. *Curr.* "Tubercular Diatrype."

Perithecia conical or depressed, with long ostiola, penetrating the bark, and raising the wood into minute prominent black tubercles; sporidia dark, elliptic.—*Curr. Linn. Trans.* xxii. *t.* 46, *f.* 78. *B. & Br. Ann. N.H. no.* 835.

On twigs.

Sporidia (·0005 in.) ·0127 m.m. long, uniseriate, often partly overlapping, dark olive brown, elliptical bi-, tri-, or multi-nucleate, sometimes quite simple. Perithecia deeply set in the wood; when a tuft of them is cut transversely there is a black line round them which is very well defined.

2451. Diatrype cincta. *B. & Br.* "Girdled Diatrype."

Perithecia irregularly ovate, closely packed in a compact, leathery conceptaculum; ostiola bursting the bark, forming

round pustules; sporidia dark, obtuse, constricted in the middle, uniseptate.—*B. & Br. Ann. N.H. no.* 816. *Valsa cincta, Curr. Linn. Trans.* xxii. *t.* 48, *f.* 135.

On twigs. *(Robinia?)* March. Blackheath.

Sporidia (·0007 in.) ·0177 m.m., uniseriate, dark rich brown, obtuse, constricted in the middle, uniseptate. Under a lens the ostiola seem surrounded with a dirty olive-green stroma.

2452. Diatrype podoides. *Fr.* "Spinulose Diatrype."

Crowded, unequal; ostiola spinulose; laterally or altogether erumpent; sporidia large, elongated, curved, 6-7 septate, pale-brown.—*Fr. S.V.S. p.* 385. *Sph. podoides, Pers. Syn. p.* 22. *Moug. exs. no.* 1074. *B. & Br. Ann. N.H. no.* 600. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 85.

On dead branches. Jan.

Sporidia biseriate or crowded, clear, rather pale-brown, 7-septate, with a hyaline joint at each extremity, often slightly curved (·0024-·003 in.) ·05-·07 m.m. long.—*F.C.*

E. Sporidia uncertain.

2453. Diatrype ulicis. *Berk.* "Furze Diatrype."

Verrucæform, nearly free, black without and within; perithecia membranaceous, broad; ostiola tuberculose.—*Sph. ulicis, Fr. Linn. v. p.* 544. *B. & Br. Ann. N.H. no.* 599.

On furze. Penzance.

Forming warts, erumpent, prominent, free above, subrotund or unequal, crowded, somewhat confluent, surface unequal, and tuberculose with the ostiola: perithecia crowded, broad, membranaceous, irregular.

DIATRYPE FLAVO-VIRENS, *Fr.* . . See *Eutypa. no.* 2398.
DIATRYPE ELEVATA, *B. & Br.* . . See *Eutypa. no.* 2404.
DIATRYPE LEIOPLACA, *Fr.* . . . See *Eutypa. no.* 2400.
DIATRYPE LATA, *Fr.* . . . . . See *Eutypa. no.* 2397.
DIATRYPE DECIPIENS, *Fr.* . . . See *Eutypa. no.* 2403.
DIATRYPE STIPATA, *Curr.* . . . See *Valsa dissepta, Fr.*
DIATRYPE CERATOSPERMA, *Fr.* . . See *Valsa ceratophora, Tul.*
DIATRYPE SORDIDA, *B. & Br.* . . See *Valsa taleola, Fr.*
(Curr. Linn. Trans. xxv. p. 246.)
DIATRYPE SCABROSA, *Fr.* . . . See *Eutypa.*

Gen. **350.** **MELANCONIS**, Tul.

Fig. 386.

Stroma regular, orbicular or ovate, conical or pulvinate; conidia simple or multilocular, often oozing out in a black mass; spermatia shortly filiform, curved. Perithecia globose, semi-immersed, with short necks, circinating; sporidia two, or many celled, hyaline or coloured.—*Tul. Carp.* ii. *p.* 115. (*Figs.* 386, 387.)

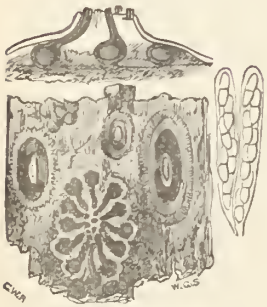


Fig. 387.

2454. Melanconis stilbostoma. *Tul.* "Birch Melanconis."

Conidia.—Stroma elevated, prominent, white; conidia compact, subglobose, olive, or olive-brown.—*Melanconium bicolor, Nees. f.* 27. *Corda.* i. *f.* 33, 34. *Fckl. exs. no.* 84. *Rabh. exs. no.* 590. *M. betulinum, Schm. & Kze. exs. no.* 208. *Fckl. exs. no.* 85. *Moug. exs. no.* 670. *Fries. exs. no.* 299. *M. elevatum, Corda.* iii. *f.* 60. *Didymosporium elevatum, Lk. Sp.* vi. *p.* 94. *Fr. S.M.* iii. *p.* 486. *D. betulinum, Grev. t.* 273. (*Fig.* 386.)

Spermogonia.—Nucleus pallid; spermatia at length curved, very slender, orange.—*Nemaspora crocea, Fries. exs. no.* 107. *Nemaspora aurea, Rabh. exs. no.* 584. *Libertella betulina, Desm. Ann. Sc. Nat.* xix. (1830), *t.* 5, *f.* 4.

Ascophore.—Perithecia in circles, covered with a waxy dirty-white disc; ostiola prominent, scattered, bursting forth, and at length obliterating the disc; sporidia biseriate, colourless, acuminate-elliptic, constricted, endochrome bipartite.—*Tul. Carp.* ii. *p.* 120, *t.* 14, *f.* 1-12. *Fckl. exs. no.* 590. *Sphæria stilbostoma* (in part). *Fr. S.M.* ii. *p.* 403. *Fr. exs. no.* 145. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 140. *Desm. exs. no.* 757. *Moug. exs. no.* 962. (*Fig.* 387.)

On birch. [United States.]

2455. Melanconis alni. *Tul.* "Alder Melanconis."

Conidia.—Stroma elevated, latent; conidia compact, globose, or subglobose, very small, pelucid.—*Melanconium sphæroideum,*

Lk. Sp. vi. *p.* 92. *Fr. S.M.* iii. *p.* 488. *Desm. exs. no.* 140. *M. apiocarpum*, β. *Alni*, *Corda.* ii. *f.* 13. *Rabh. exs. no.* 469. *Fckl. exs. no.* 89.

Ascophore.—Perithecia globose, black; asci oblong-linear; sporidia narrowly elliptical or oblong, obtuse, curved, uniseptate, scarcely constricted, with a hyaline setiform appendage at each extremity.—*Tul. Carp.* ii. *t.* 21, *f.* 19, 33. *Cooke exs. no.* 369. *Wuestneia suffusa*, *Fckl. exs. no.* 593. *Sphæria thelebola*, *Curr. Linn. Trans.* xxii. *f.* 158 (not Fries).

On alder twigs.

2456. Melanconis chrysostroma. *Tul.* "Yellow-disc Melanconis."

Conidia.—Conidia ovate, rounded behind, apiculate at the base, olive-brown, with 1-2 nuclei.—*Melanconium bicolor*, β. *Rabh. exs. no.* 590. *Fckl. exs. no.* 90. *M. microsporum*, *Nees. Desm. exs. no.* 753.

Ascophore.—Pustulate; perithecia irregular, circinating and decumbent; ostiola scarcely exserted, pierced; disc yellow; asci elongated, clavate; sporidia elliptic, attenuated, at length uniseptate, strongly constricted.—*Tul. Carp.* ii. *p.* 125, *t.* 24, *f.* 14-20. *Valsa chrysostroma*, *Fr. Summ. V.S. p.* 412. *B. & Br. Ann. N.H. no.* 861*. *t.* 10, *f.* 16. *Berk. exs. no.* 296. *Sph. xanthostroma*, *Mont. Ann. S. Nat.* 1834, *t.* 12, *f.* 4. *Berk. Mag. Zool. & Bot. no.* 22. *Fries. exs. no.* 444. *Desm. exs. no.* 1756. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 160.

On hazel and hornbeam.

Perithecia small, hardly visible above the bark, but very visible when the epidermis is stripped off. Easily known by its yellow stroma. Sporidia (·0007-·0009 in.) ·0177-·022 m.m. long.

2457. Melanconis Berkelæi. *Tul.* "Berkeley's Melanconis."

Conidia.—Ovate elliptic, or elliptic oblong, straight, obtuse, black, semi-opaque, quadrilocular (rarely 2-6 locular).—*Stilbospora macrosperma*, *B. & Br. Hook. Journ. Bot.* iii. (1851). *t.* 9, 10.

Ascophore.—Perithecia circinating, or crowded; ostiola scarcely prominent, black; asci linear-oblong; sporidia uniseriate, ovate, elliptic, or elliptic-oblong, straight, quadrilocular, dark brown, hyaline at the extremity.—*Tul. Carp.* ii. *p.* 130. *Fckl. exs. no.* 586. *Sphæria inquinans*, *B. & Br. Hook. Journ. Bot.* iii. (1851), *t.* 10. *var. Ulmi* (not *Massaria inquinans*, *B. & Br.*).

On elm twigs.

Conidia and sporidia ·05-·06 m.m. long, ·015-·02 m.m. broad.

2458. Melanconis lanciformis. *Tul.* "Lanceolate Melanconis."

Conidia.—Pustules disc-like, flattened; conidia clavate; sporophores attenuated.—*Coryneum disciforme, Corda. Ic.* iii. *f.* 91. *Rabh. exs. no.* 278. *Cooke exs. no.* 351. *B. & Br. Ann. N.H. no.* 450.

Stylospores.—Tufts solitary, black, innate, at first covered, then erumpent; stylospores black, subglobose.— *Coniothecium betulinum, Corda.* i. *f.* 25. *B. & Br. Ann. N.H. no.* 461.

Pycnidia.—Pustules beneath the epidermis woolly, multilocular within; stylospores large, with septate peduncles, clavate, at length deciduous, effused, oblong-elliptic, multilocular.— *Hendersonia polycystis, B. & Br. Ann. N.H. no.* 415.

Ascophore.—Bursting forth transversely, lanceolate, convex, black at first cinereous within, then blackish; ostiola at length slightly prominent; sporidia biseriate, pale clear brown, flatly elliptical, rather obtuse, tips frequently pellucid.—*Tul. Carp.* ii. *t.* 16. *Fckl. exs. no.* 1996. *Diatrype lanciformis, Fr. S.V.S. p.* 385. *S. lanciformis. Fr. S.M.* ii. *p.* 362. *Fries exs. no.* 73. *Eng. Fl.* v. *p.* 243. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 91. *Rabh. exs. no.* 248. *S. betulina, Sow. t.* 371, *f.* 6.

On birch bark.

Sporidia (·002 in.) ·05 m.m. long.

It is doubtful whether *Coniothecium betulinum* and *Hendersonia polycystis* are correctly referred to this species by Mr. F. Currey. Tulasne seems to think not.

2459. Melanconis longipes. *Tul.* "Elongated Melanconis."

Conidia.—Erumpent, disciform, black; stroma placentæform, brown within; conidia fusiform, acute at each end, septate, brown, with a terminal colourless apiculus.—*Coryneum Kunzei, Corda. Ic.* iv. *f.* 131. *Curr. Quart. Journ. Micr. Sc.* v. (1857), *p.* 127. *Rabh. exs. no.* 779. *Fckl. exs. no.* 228. (See no. 1397, ante.)

Ascophore.—Erumpent, suborbicular, convex, reddish-brown, at length black, nearly of the same colour within; ostiola rather prominent, four sided; asci clavate; sporidia lanceolate or subcymbiform; endochrome quadripartite.—*Tul. Carp.* ii. *p.* 139. *Ann. Sc. Nat. ser.* 4, *t.* v. *p.* iii. *Diatrype quercina, B. & Br. Ann. N.H. no.* 839. (not Tulasne or Persoon.) *S. quercina, Fr. S.M.* ii. *p.* 362. *Eng. Fl.* v. *p.* 243. *Berk. Ann. N.H. no.* 172. *Curr. Linn. Trans.* xxii. *f.* 90. *Stromatosphæria quercina, Grev. Fl. Ed. p.* 358 (in part). *Valsa arcuata, Curr Linn. Trans.* xxii. *f.* 167.

On oak branches.

Sporidia (·0018 in.) ·004 m.m. long.—*B. & Br.*

Gen. **351.** **VALSA,** Fr.

Fig. 388.

Perithecia carbonaceous, perfect, circinating, elongated into converging necks; ostiola erumpent, joined together, or ending in a common disc.—*Fr. S.M. Berk. Outl. p.* 389. (*Fig.* 388.)

Series 1. **Valsella.** Sporidia simple, hyaline.

a. Circumscriptæ.

2460. **Valsa prunastri.** *Fr.* "Sloe Valsella."

Spermogonia.—Cells set in a depressed conceptaculum; disc erumpent, dirty brown; tendrils reddish; spermatia cylindrical, minute.—*Cytispora rubescens, Fr. S.M.* ii. *p.* 542. *Fckl. exs. no.* 627. *Eng. Fl.* v. *p.* 281.

Ascophore.—Lentiform, stroma formed of the bark; ostiola elongated, crowded, 4-6 angled, sulcate, subdivergent; sporidia biseriate, almost colourless, minute, curved.—*Fr. S. V.S. p.* 411. *Fckl. exs. no.* 596. *Sphæria prunastri, Pers. Syn. p.* 37. *Moug. exs. no.* 378. *Fr. S.M.* ii. *p.* 380. *Fries. exs. no.* 226. *Eng. Fl.* v. *p.* 246. *Curr. Linn. Trans.* xxii. *p.* 275. *Berk. exs. no.* 29. *Cooke exs. no.* 237.

On branches of sloe. [Mid. Carolina.]

Bursting forth transversely. Sporidia (·0003 in.) ·007 m.m.

2461. **Valsa stellulata.** *Fr.* "Stellate Valsella."

Spermogonia.—Spermatia cylindrical, curved.—*Cytispora sp. Fckl. Sym. Myc. p.* 196.

Ascophore.—Subrotund, immersed; stroma white, or dirty-white, circumscribed; ostiola short, ovato-globose, radiato-stellate; asci elliptical; sporidia biseriate, very pale yellowish, simple, slightly curved, rounded at the ends.—*Fr. S.V.S. p.* 411. *Fckl. exs. no.* 597. *Sphæria stellulata, Fr. S.M.* ii. *p.* 381. *Fries. exs. no.* 442. *Eng. Fl.* v. *p.* 246. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 120. *Berk. exs. no.* 79. *Cooke exs. no.* 382.

On elm branches. [United States.]

Variable as to the size of the patches, their manner of bursting through, the colour of the stroma, and length of the ostiola; sometimes the latter are crowded and pierce the epidermis in a fascicle, occasionally irregularly scattered, the patches somewhat confluent, and the whole surface of the branch pierced by a single ostiolum, which, though varying in length, are always curiously sulcate.

2462. Valsa syngenesia. *Fr.* "Elder Valsella."

Conical, free, adnate at the base; stroma cinereous-black; ostiola exserted; sporidia cylindrical, curved, minute, hyaline.—*Fr. Summ. V.S. p.* 411. *B. & Br. Ann. N.H. no.* 847 (not Currey). *Sph. syngenesia, Fr. Obs.* ii. *t.* 7, *f.* 1. *Cooke exs. no.* 238.

On elder. [On *Rubus*, Mid. Carolina.]

Two species similar in habit, but differing in fruit, appear to have been confounded by Fries in his observations; Rev. M. J. Berkeley thinks this to be the genuine species, whilst Messrs. Currey, Nitschke, Fuckel, &c., refer it to the species included here under *Diatrype frangulæ*.

β. *Ineusæ.*

2463. Valsa nivea. *Fr.* "Snowy disc Valsella."

Spermogonia.—Cells set in a conceptaculum; disc erumpent, at length black; tendrils yellow; spermatia minute.—*Cytispora chrysosperma, Fr. S.M.* ii. *p.* 542. *Eng. Fl.* v. *p.* 282. *Moug. exs.* 881.

Ascophore.—Conic; stroma white, contained in a close dimidiate conceptaculum, which easily separates from the bark; disc truncate, mealy, almost snow-white; ostiola slightly prominent, globose, even; asci lanceolate, sessile; sporidia cylindrical, curved, simple, hyaline.—*Fr. S.V.S. p.* 411. *Tul. Carp.* ii. *p.* 128, *t.* 22, *f.* 12-21. *De Not. Sfer. Ital.* i. *t.* 36. *Fckl. exs. no* 602. *Sphæria nivea, Hoffm. Veg. Cr.* i. *p.* 26, *t.* 6, *f.* 3. *Moug. exs. no.* 278. *Eng. Fl.* v. *p.* 248. *Fr. S.M.* ii. *p.* 386. *Fries. exs. no.* 76. *Funck. exs. no.* 281. *S. marginata, Sow. t.* 372, *f.* 7.

var. **polyspora.** Sporidia numerous.—*Curr. Linn. Trans.* xxii. *f.* 126. *Valsa polyspora, Nke. Pyr. Germ. p.*

On branches of poplar, hawthorn, &c. [Mid. Carolina.]

Sporidia (·0002-·0003 in.) ·005-·007 m.m. long.

2464. Valsa leucostoma. *Fr.* "White-mouthed Valsella."

Spermogonia.—*Cytispora nivea, Fckl. En. F.N. Cytispora ocellata, Fckl. exs. no.* 1968.

Ascophore.—Somewhat conic; stroma cortical, contained in a close dimidiate conceptaculum; disc truncate, white, perforated by the black poriform ostiola; asci oblong, sessile; sporidia cylindrical, curved, simple, hyaline.—*Fr. S.V.S. p.* 411. *Fckl. exs. no.* 603. *Valsa Persoonii, Nke. Pyr. Germ.* i. *p.* 222. *S. leucostoma, Fr. S.M.* ii. *p.* 387. *Fries. exs. no.* 258. *Nees. f.* 332. *Moug. exs. no.* 659. *Eng. Fl.* v. *p.* 248. *Tode. f.* 96. *Berk. exs. no.* 31.

On branches of *Prunus*. Common. [United States.]

At first resembling a *Cytispora*, with 1-2 black included ostiola, but when perfect bearing many minute exserted, new and then slightly prominent ostiola. It differs from *V. nivea* in the nature of the disc, the obliterated stroma, and the more adnate conceptaculum.—*Fries.*

2465. Valsa Kunzei. *Fr.* "Kunze's Larch Valsella."

Spermogonia.—*Cytispora sp. Fckl. Sym. Myc. p.* 201.

Ascophore.—Conical; stroma pallid—yellow; disc waxy, dingy, at first pierced with a pore, then the small black ostiola, umbilicate; asci elliptical; sporidia biseriate, almost colourless, curved.—*Sph. Kunzei, Fr. Kze. M.H.* ii. *p.* 45. *B. & Br. Ann. N.H. no.* 601. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 133. *Fckl. exs. no.* 1728.

On fallen branches of larch.

Orbicular, prominent; disc erumpent, truncate, dingy cinereous or olivaceous, conceptaculum scarcely a line broad, scutelliform, black, adnate to the inner bark; perithecia minute, numerous, crowded. Sporidia (·0004 in.) ·01 m.m. long.

2466. Valsa microstoma. *Fr.* "Small-mouthed Valsella."

Spermogonia.—Spermatia cylindrical, curved, minute.—*Cytispora sp. Fckl. Sym. Myc. p.* 199.

Ascophore.—Orbicular, subimmersed; disc prominent, nearly plane; ostiola very minute, globose, covered; sporidia biseriate, colourless, transparent, curved, obtuse.—*Fr. S.V.S. p.* 411. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 130. *Sph. microstoma, Fries. exs. no.* 185. *Berk. Mag. Zool. & Bot. no.* 20. *Fr. S.M.* ii. *p.* 388. *Nees. f.* 331. *Fckl. exs. no.* 1972.

On dead sloe.

Sporidia (.0005-·0007 in.) ·0127-·0177 m.m long.

2467. Valsa dissepta. *Fr.* "Variable Elm Valsella."

Spermogonia.—Spermatia almost linear, on branched septate threads.

Ascophore.—Loosely circumscribed; perithecia scattered (sometimes crowded), large, saucer-shaped; ostiola crumpent, somewhat united; sporidia cylindrical, curved, obtuse.—*Diatrype stipata, B. & Br. Ann. N.H. no.* 843-970*. *S. dissepta, Fr. S.M.* ii. *p.* 392. *Fries. exs. no.* 224. *Eng. Fl.* v. *p.* 249. *S. stipata, Curr. Phil. Trans.* 1857. *Linn. Trans.* xxii. *t.* 49, *f.* 197. *Cooke exs. no.* 239. *S. saturnus, Sow. t.* 216. *Valsa hypodermia, B. & Br. Ann. N.H. no.* 862, *t.* 10, *f.* 18 (not Fries). *Quaternaria dissepta, Tul. Carp.* iii. *p.* 107.

On branches of elm, &c.

The scutellæform conceptaculum 1½-2 lines broad is most distinct, elliptic or slightly flexuous from the confluence of two individuals; in the centre is a single perithecium, rarely two, covered with a dingy substance with a darker, slightly prominent ostiolum in the centre, and a slender neck, separated from the conceptaculum by the loose wood-coloured cortical stroma.—*M. J. B.* Sporidia (·0007-·0009 in.) ·0177-·022 m.m., sometimes reaching (·001 in.) ·025 m.m. long.

2468. Valsa controversa. *Fr.* "Variable Valsella."

Circumscribed; stroma cortical, black; perithecia immersed; ostiola crumpent, rather prominent; asci subclavate; sporidia biseriate, hyaline, ovato-oblong, containing four nuclei.—*Fr. S.V.S. p.* 411. *Sph. controversa, Desm. Ann. Sc. Nat. ser.* ii. *vol.* xvii. *p.* 102. *Desm. exs. no.* 1255. *B. & Br. Ann. N.H. no.* 602.

On dead twigs of ash, *Sophora Japonica*, herbaceous stems, &c.

Varying somewhat in external appearance on different plants, a greater or less number of perithecia being collected together, and the spots of a more or less deep-black.

2469. Valsa dryina. *Curr.* "Brown Oak Valsella."

Perithecia pyriform, imbedded in a dirty-brown stroma; ostiola rather shorter than the perithecia, somewhat thickened towards the apex; sporidia biseriate or crowded, colourless, strongly curved; asci and sporidia very delicate and hyaline.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 135 *b. B. & Br. Ann. N.H. no.* 850.

On dead oak branches. Weybridge.

Sporidia (·0003 in.) ·0076 m.m. long.

2470. Valsa concamerata. *Curr.* "Woolly Oak Valsella."

Perithecia raising the inner bark into a dome-shaped conceptaculum, tufts of perithecia united by white woolly fibres; spo-

ridia crowded, colourless, curved.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 131. *B. & Br. Ann. N.H. no.* 867.

On oak.

Sporidia (·0004 in.) ·01 m.m. long. Mr. Currey appears to be doubtful whether this may not be a form of *V. ceratophora*.

γ. *Obvallatæ.*

2471. Valsa coronata. *Fr.* "Coronated Valsella."

Peritheeia rather irregular, disposed in a circle; ostiola even, obtuse, at first globose, crowded, at length beaked; sporidia colourless, biseriate, cylindrical, curved, simple.—*Fr. S.V.S. p.* 412. *S. coronata, Hoffm. V.C.* i. *t.* 5, *f.* 45. *Schm. M.H.* ii. *t.* i. *f.* 14. *Fr. S.M.* ii. *p.* 395. *Eng. Fl.* v. *p.* 249. *Klotsch. exs. no.* 543.

On oak, dog rose, and hawthorn. [Mid. & Up. Carolina.]

2472. Valsa ceratophora. *Tul.* "Horned Valsella."

Spermogonia.—Spermatia, minute, simple.—*Cytispora sp.*

Ascophore.—Erumpent, splitting the epidermis in a somewhat stellate manner; peritheeia globose, with very long scabrous necks; asci numerous, linear-oblong, eight-spored; sporidia minute, sausage-shaped, pallid.—*Tul. Carp.* ii. *p.* 191, *t.* 22, *f.* 1-11. *Cooke Seem. Journ.* (1866) *f.* 1. *Sphæria ceratosperma, Moug. exs. no.* 567. *Fr. S.M.* ii. *p.* 364 (*partly*). *Curr. Linn. Trans.* xxii. *p.* 292, *t.* 47, *f.* 93. *Eng. Fl.* v. *p.* 244. *Valsa coronata, Duby in Rabh. exs.* (1860) *no.* 250. *Nke. Pyr. Germ. p.* 180. *Cooke exs. no.* 251. *Diatrype ceratosperma, Fr. S.V.S. p.* 411.

On branches of elm, holly, &c.

var. **rosarum.** Ostiola abbreviated.—*Valsa rosarum, De Not. Sfer. Ital. t.* 42. (Spermogonia=*Cytispora Rosæ, Fckl. exs. no.* 624.) *Grev. t.* 20.

On stems of rose.

var. **quercicola.** *Valsa decorticans, Fr. S.V.S. p.* 412 (in part). *Fckl. exs. no.* 606.

On oak branches. (*Fig.* 388.)

2473. Valsa abietis. *Fr.* "Fir-tree Valsella."

Spermogonia.=*Cytispora pini. Fckl. exs. no.* 628.

Ascophore.—Immersed; stroma thin, dirty white; peritheeia ovate, aggregate; ostiola oblong, even, thick, collected into

a disc; asci linear-oblong; sporidia biseriate, cylindrical, colourless, curved.—*Fr. S.V.S. p.* 412. *Fckl. exs. no.* 609. *Curr. Linn. Trans.* xxii. *t.* 48. *f.* 147. *S. abietis, Fr. S.M.* ii. *p.* 398. *Fries. exs. no.* 77. *Eng. Fl.* v. *p.* 249. *Cucurbitaria pinastri, Grev. t.* 50.

On branches of *Pinus abies*.

Sporidia (·0003-·0006 in.) ·0076-·015 m.m. long.

2474. Valsa aurea. *Fckl.* "Almond-spored Valsella."

Forming dark bullate spots, caused by the black perithecia nestling beneath the thin epidermis, somewhat depressed around the ostiola, which are at first covered with a bright orange disc, at length naked; perithecia from 4-6 in a group, black, with straight convergent necks, never confluent; asci cylindrical, containing eight almond-shaped, large, uniseriate, hyaline sporidia.—*Fckl. Enum. F.N. fig.* 20 (1861), *Nke. Pyr. Germ. p.* 220. *Valsa amygdalina, Cooke Seem. Journ. Bot. t. f.* 21 (1866), *no.* 446. *Cooke exs. no.* 250. *Valsa rutila, Tul. Carp.* ii. *p.* 196 (1863). *Wuestneia aurea, Fckl. exs. no.* 587.

On small twigs of hornbeam.

Sometimes on the same twigs as *V. hiorulosa*, from which it is distinguished with the naked eye by the dark prominent perithecia and bright orange disc.

2475. Valsa ambiens. *Fr.* "Circle Valsella."

Spermogonia.—Conceptaculum none, cells black, circinating; disc dingy, tendrils pale; spermatia minute.—*Cytispora carphosperma, Fr. S.M.* ii. *p.* 543. *Eng. Fl.* v. *p.* 282. *Cytispora leucosperma, Fr. S.M.* ii. *p.* 543. *Desm. exs. no.* 489.

Ascophore.—Perithecia immersed, disposed in circles; ostiola even, subglobose, surrounding a dirty-white waxy disc; sporidia colourless, 4 or 8 cylindrical, curved, obtuse, hyaline.—*Fr. S.V.S. p.* 412. *Tul. Carp.* ii. *p.* 176. *Fckl. exs. no.* 616. *Cooke exs. no.* 256. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 138. *Sphæria ambiens, Fr S.M.* ii. *p.* 403. *Fries. exs. no.* 8. *Moug. exs. no.* 872. *Fl. Dan. t.* 2039, *f.* 1. *Eng. Fl.* v. *p.* 250. *Berk. exs. no.* 80. *Valsa tetraspora, Curr. Linn. Trans.* xxii. *t.* 48, *f.* 148 *(partly). Fckl. exs. no.* 2141.

On dead branches, especially *Rosaceæ*. Common.
[United States.]

Varying much in size, in the degree of elevation above the general surface and the colour of the disc, which is sometimes jet black.—*M.J.B.* Sporidia (·0006 in.) ·015 m.m. long.

2476. Valsa salicina. *Fr.* "Willow Valsella."

Conidia.—Pulvinate, stroma fleshy brown, lentiform, black; conidia conglutinate, suboblong, brown.—*Coniothecium amentacearum, Corda. Ic.* i. *fig.* 26. *B. & Br. Ann. N.H. no.* 460.

Spermogonia.—Conceptaculum none; cells black, circinating; disc plane, dirty brown; tendrils delicate, pale; spermatia minute.—*Cytispora fugax, Fr. S.M.* ii. *p.* 544. *Bull. t.* 432, *f.* 5. *Eng. Fl.* v. *p.* 282. *Cytispora salicina, Rabh. exs. no.* 439. *Fckl. exs. no.* 623.

Ascophore.—Pustulate; perithecia globose, disposed in circles; disc at length white, pierced with one or two pores; ostiola globose, very minute, at length exserted; asci tetrasporous or octosporous; sporidia cylindrical, curved, simple, hyaline.—*Fr. S.V.S. p.* 412. *Fckl. exs. no.* 615. *Cooke exs. no.* 377. *S. salicina, Fr. S.M.* ii. *p.* 401. *Fries. exs. no.* 10. *Eng. Fl.* v. *p.* 250. *Tode. f.* 107. *Valsa tetraspora, Curr. Linn. Trans.* xxii. *t.* 48, *f.* 148 *(partly). Berk. Ann. N.H. no.* 367. *Fckl. exs. no.* 614.

On willow twigs. Common. [Mid. Carolina.]

Perithecia distinct, thin, minute, about 8 in every circle, their necks united into a minute waxy, slightly prominent disc, which is at first dingy, then white, pierced with a black pore, when it is very like *V. leucostoma*, but when perfect the disc is obliterated by the shining globose ostiola.—*Fries.*

2477. Valsa platanigera. *B. & Br.* "Small Plane Valsella."

Disc minute, whitish; perithecia few; ostiola obscure; asci clavate; sporidia lanceolate, minute.—*B. & Br. Ann. N.H. no.* 851, *t.* 9, *f.* 12.

On plane. Leicestershire.

Perithecia 4-7 in a group, globose, subdecumbent, neck about the same length, oblique; disc small, white; ostiola obscure; asci clavate; sporidia hyaline, lanceolate (·0007 in.) ·0177 m.m. long.—*B. & Br.*

2478. Valsa tetraploa. *B. & Curt.* "Four-ribbed Valsella."

Perithecia crowded; ostiola 20-30, forming a compact tuft, sub-quadrisulcate; sporidia minute, oblong, curved.—*Ann. N.H. no.* 854.

On dead sticks. Feb. Elmhurst. [United States.]

Perithecia 20-30 crowded, their ostiola, which are mostly quadrisulcate, forming a little close tuft; sporidia minute, sausage-shaped.—*B. & Br.*

2479. Valsa rhodophila. *B. & Br.* "Rose-twig Valsella."

Pustules minute, convex, raising the cuticle; ostiola minute, even, shining; asci clavate; sporidia cylindrical, oblong, curved. *B. & Br. Ann. N.H. no.* 855.

On dead rose twigs. Orton Wood.

Pustules minute, lifting up the cuticle, which separates from them; disc convex; ostiola minute, shining, even; asci clavate, containing eight sausage-shaped sporidia (·0004 in.) ·01 m.m. long.—*B. & Br.*

2480. Valsa quernea. *Curr.* "Cluster-spored Valsella."

Perithecia?

Sporidia slightly curved, simple, linear, colourless, sub-hyaline, crowded at the apex.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 141. *B. & Br. Ann. N.H. no.* 856.

On oak twigs.

Sporidia (·0002-·0003 in.) ·005-·007 m.m., crowded together at the apex of the ascus, as in many *Peziza*.

δ *Circinatæ.*

2481. Valsa pulchella. *Fr.* "Beautiful Valsella."

Spermogonia.—Perithecia conico-cylindrical, mixed with the ascophorous perithecia; spermatia linear, straight.—*Tul. Carp.* ii. *p.* 109.

Ascophore.—Perithecia globose, decumbent, circinating; ostiola very long, flexuous, obtuse; asci obovate, linear; sporidia cylindrical, curved, simple, obtuse, hyaline.—*Fr. S.V.S. p.* 412. *Fckl. exs. no.* 618. *S. pulchella, Fr. S.M.* ii. *p.* 406. *Fries. exs. no.* 146. *Nees. f.* 333. *Moug. exs. no.* 279. *Eng. Fl.* v. *p.* 251. *Cryptosphæria pulchella, Grev. t.* 67. *Calosphæria princeps. Tul. Carp.* ii. *p.* 109. *t.* 13, *f.* 17-22.

On branches of birch and cherry. Chiefly in subalpine districts. [United States.]

2482. Valsa quaternata. *Fr.* "Quaternate Valsella."

Spermogonia.—Nucleus pallid; spermatia, at length curved, very slender, orange.—*Næmaspora crocea, Moug. exs. no.* 177. *Fckl. exs. no.* 634, 635. *Eng. Fl.* v. *p.* 355.

Ascophore.—Perithecia generally grouped four together, naked, decumbent; ostiola short, obtuse, even, pierced; sporidia biseriate, almost colourless, cylindrical, curved.—*Fr. S.V.S. p.*

412. *Fckl. exs. no.* 621. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 164, 165. *Cooke. exs. no.* 248. *S. quaternata, Fr. S.M.* ii. *p.* 409. *Fries. exs. no.* 9. *Fl. Dan. t.* 2039, *f.* 2. *Moug. exs. no.* 179. *Pers. Syn. t.* 2, *f.* 1, 2. *Eng. Fl.* v. *p.* 251. *Quaternaria Persoonii, Tul. Carp.* ii. *p.* 105, *t.* 12, *f.* 16-25. *Fckl. Sym. Myc. p.* 230, *t.* 2, *f.* 45.

On beech branches. Common. [United States.]

Perithecia generally but not constantly quaternate, decumbent, sometimes when the epidermis is stripped off adhering to it, but occasionally left behind in the inner bark; ostiola collected together and perforating the bark by a little black, rugged, convex tubercle.– *M.J.B.*

Sporidia (·0004-·0006 in.) ·01-·015 m.m. long.

2483. Valsa hypodermia. *Fr.* "Crusted elm Valsella."

Circinating; perithecia globose, covered with a thin black crust; ostiola subglobose, crowded, shining; sporidia broadly fusiform, hyaline.—*S. hypodermia, Fr. S.M.* ii. *p.* 407. *Fries. exs. no.* 32. *Eng. Fl.* v. *p.* 251. *Berk. Mag. Zool. & Bot. no.* 21. *B. & Br. Ann. N.H. no.* 970* (not *Currey Linn. Trans.* xxii. *p.* 280). *Cryptospora hypodermia, Fckl. Sym. Myc. p.* 192.

On dead branches of Elm.

Series 2. **Tuberculostoma.** Sporidia linear or filiform.

2484. Valsa lageniformis. *Curr.* "Flask-shaped Valsa."

Perithecia solitary or circinating, buried in the wood, procumbent, the short ostiolum bending upwards and piercing the bark. A minute dark circle usually surrounds the ostiolum. Nucleus white; asci linear, enormously long; sporidia 6-8 filiform, the length of the ascus.—*Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 16. *B. & Br. Ann. N.H. no.* 1096. *Sph. lageniformis, Sollm. Bot. Zeit.* 1862, *p.* 380. *Ostropa cubicularis, Fckl. Sym. Myc. p.* 92. *Lib. exs. no.* 338. *Tuberculostoma lageniforme, Sollm. Hedw.* 1864, *p.* 116. *Rabh. exs. no.* 765. *Fckl. exs. no.* 2035.

On Ash. Sept. Lewes.

2485. Valsa suffusa. *Fr.* "Powdered Valsa."

Spermogonia.—Perithecia hemispherical, black; spermatia minute, fusiform, curved, hyaline.—*Cryptosporium Neesii, Corda. Sturm.* ii. *t.* 51. *B. & Br. Ann. N.H. no.* 404. *C. vulgare, Fries. S. M.* iii. *p.* 482.

Ascophore.—Immersed, subpustulate, suffused with a yellowish powder: disc minute, pallid, bordered with black; ostiola erumpent, globose: asci broadly obovate: sporidia simple, very long, linear, obtuse, more or less arcuate.—*Fckl. exs. no.* 1997. *Cooke exs. no.* 247. *Tul. Carp.* ii. *p.* 145. *Sph. sufusa, Fr. S.M.* ii. *p.* 399. *Fries exs. no.* 229. *Sph. cryptosporii. Curr. Micr. Journ.* iii. *p.* 271, *Linn. Trans.* xxii. *t.* 48, *f.* 144. *Sph. Rabenhorstii, B. & Br. Ann. N.H. no.* 631. *Valsa commutata, Fckl. exs. no.* 620.

On beech and alder twigs.

Sporidia (·00036 in.) ·008–·009 m.m. long.

2486. Valsa intexta. *Curr.* "Interwoven Valsa."

Perithecia? Sporidia interwoven, filiform, very long.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 169. *B. & Br. Ann. N.H. no.* 860.

On oak. Weybridge.

"Sporidia interwoven, generally nearly as long as the ascus, filiform and flexuous. The plant was not in a state to enable me to describe the perithecia. The paraphyses were very long and numerous, and septate. I know of no species to which it can be referred, although the sporidia somewhat resemble those of *V. sufusa*, *Fr.*"—*F.C.*

2487. Valsa corylina. *Tul.* "Hazel Valsa."

Perithecia circinating, globose, small; ostiola abbreviated, cylindrical, black; disc blackened; stroma more or less brownish, of a beautiful orange-red within; asci oblong, substipitate; sporidia fasciculate, linear, curved, hyaline, with several nuclei.—*Tul. Carp.* ii. *p.* 174. *Nke. Pyr. Germ. p.* 217. *Cryptospora corylina. Fckl. Sym. Myc. p.* 192. *Valsa conjuncta, Fckl. exs. no.* 619 (not *Nees*).

On hazel twigs. Sherborne. Dr. Capron.

Very distinct from *D. ferruginea*, with which it has been confounded. The stroma is brighter, the ostiola less prominent, and the sporidia different.

Series 3. Valsaria. Sporidia uniseptate, hyaline.

* Sporidia not appendiculate.

2488. Valsa extensa. *Fr.* "Buckthorn Valsa."

Convex, connected by an effused, ambient crust; stroma fibrous: perithecia ovate; ostiola crowded, free, oblong, even;

sporidia uniseriate, colourless, obtuse, slightly constricted, endochrome bipartite.—*Curr. Linn. Trans.* xxii. *t.* 47, *f.* 116. *S. extensa*, *Fr. Obs.* i. *p.* 175, *t.* 3, *f.* 2, *S.M.* ii. *p.* 381. *Eng. Fl.* v. *p.* 247.

var. b. **Rhamni.** Slightly adnate above with the epidermis; contents of the perithecia blackish.—*Eng. Fl.* v. *p.* 247.

On *Rhamnus catharticus.* Rockingham Forest.

Bursting forth transversely, the short, crowded, oblong, shining ostiola, being alone visible; when the epidermis is removed a pale mark is seen round the ostiola from a portion of the cuticle being adherent; pustules connected by a brownish black, fibrous, ambient crust. Stroma fibrous.—*M.J.B.* Is this really distict from *Valsa fibrosa*?

2489. Valsa fibrosa. *Fr.* "Fibrous Sphæria."

Innate, conico-depressed, connected by an effused, ambient, fibrous crust; stroma fibrous; ostiola crowded, subrotund, even, shining; sporidia uniseriate, obtusely elliptical, slightly constricted, colourless; endochrome bipartite.—*Fr. S.V.S. p.* 411. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 98. *Cooke exs. no.* 254. *S. fibrosa*, *Pers. Syn. t.* 2, *f.* 3, 4. *Fr. S.M.* ii. *p.* 384. *Fries. exs. no.* 381. *Eng. Fl.* v. *p.* 247. *Diaporthe fibrosa*, *Fckl. Sym. Myc. p.* 204. *Wuestneia fibrosa*, *Fckl. exs. no.* 589.

On blackthorn. [United States.]

Pustules roundish, slightly raising the epidermis and rendering it pale; when the epidermis is stripped off a pale ring is seen round the ostiola, arising from the adherence of the cuticle, connected by a brownish-black, fibrous crust; stroma fibrous; contents of the perithecia blackish.—*M.J.B.*
Sporidia (·0005 in.) ·0127 m.m. long.

2490. Valsa leiphemia. *Fr.* "Common oak Valsa."

Pustulate; stroma cortical, pallid, as well as the erumpent disc; ostiola exserted, ovate, or beaked; sporidia biseriate, colourless, or very pale green, elongate acuminate, frequently slightly curved, endochrome, granular, bipartite.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 137. *Fckl. exs. no.* 611. *Cooke exs. no.* 255. *S. leiphemia*, *Fr. S.M.* ii. *p.* 399. *Fries. exs. no.* 78. *Eng. Fl.* v. *p.* 250. *S. taleola*, *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 124. *Cryptospora liphæma*, *Tul. Carp.* ii. p. 179, *t.* xxiii. *f.* 15-25.

On dead oak branches. Common. [Low. & Mid. Carolina.]

When the epidermis is stripped off the bark appears raised into round, even pustules, with a distinct, pallid, yellowish disc, entirely destitute of any conceptaculum, by which it is distinguished from *S. taleola* and others. The pustules at length acquire a blackish tinge.—*M.J.B.*
Sporidia (·0007-·0008 in.) ·0177-·02 m.m. long.

2491. Valsa biconica. *Curr.* "Biconic Valsa."

Perithecia globose, or depressed, few together, arranged in circles, penetrating the bark with their rather short ostiola, and forming small pustules; sporidia biconical.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 142. *B. & Br. Ann. N.H. no.* 857.

On (twigs ?) Jan. Weybridge.

Sporidia bic nical; endochrome granular, or oleaginous, greenish (·0011-·0012 in.) ·02[illegible]03 m.m.

Inn

2492. Valsa pulchra. *Curr.* "Currey's Valsa."

Perithecia (?) sporidia elliptic, greenish, slightly constricted in the middle and acuminate, uniseptate.—*Curr. Linn. Trans.* xxii. *t.* 48, *f.* 143. *B. & Br. Ann. N.H. no.* 858.

Habitat and locality unknown.

Sporidia biseriate, elliptical, but slightly constricted in the middle, and slightly acuminate at each end, uniseptate, greenish.—*F. C.*

2493. Valsa furfuracea. *Fr.* "Branny Valsa."

Irregularly circinating; perithecia globose, mixed with yellow branny dust; ostiola very short, joined, obsoletely prominent; sporidia uniseriate, colourless.—*S. furfuracea, Fr. S.M.* ii. *p.* 409. *Eng. Fl.* v. *p.* 251.

On branches.

Perithecia about 12 together; their ostiola minute, black, in a small flat disc, which is not raised above the bark. Pustules on the same branch bursting the bark transversely or longitudinally, sometimes three or four are confluent, giving the plant altogether a different habit.—*M. J. B.*

2494. Valsa bitorulosa. *B. & Br.* "Constricted Valsa."

Perithecia brownish, sub-pulverulent; necks decumbent, straight; ostiola confluent; sporidia uniseptate, binucleate, constricted at the septum and the articulations.—*B. & Br. Ann. N. H. no.* 861, *t.* 10, *f.* 15. *Cooke exs no.* 249.

On hornbeam. Dec.

Concealed by the cuticle: peritbecia globose, collapsed, circinating, about eight in a group, with straight decumbent necks and confluent ostiola; asci clavate; sporidia biseriate (·0007-·0008 in.) ·0177-·02 m.m. long, uniseptate, constricted strongly at the septum and in the centre of each of the binucleate articulations. Somewhat resembles the fruit of *V. fagínea*, but is larger and more constricted.—*B. & Br.*

2495. Valsa faginea. *Curr.* "Beech Valsa."

Perithecia conical; ostiola penetrating the bark, long and protruding, usually broken off; sporidia colourless, elliptic-acuminate, constricted in the middle, and irregular.—*Curr. Linn. Trans.* xxii. *p.* 281, *t.* 48, *f.* 168. *B. & Br. Ann. N.H. no.* 864.

On beech. Oct. Eltham.

Ostiola normally long and protruding, but mostly broken off; when the long ostiola are rubbed off the plant looks just like *V. quaternata* or *V. turgida*. Sporidia biseriate (·0005 in.) ·0127 m.m. long.—*F.C.*

2496. Valsa tiliæ. *Tul.* "Lime twig Valsa."

Conidia.—Tufts verrucæform, subglobose, aggregated, black; conidia obtuse, of the same colour.—*Exosporium tiliæ, Lk. Obs.* i. *p.* 8. *Fckl. exs. no.* 229.

Pycnidia.—Stylospores oblong, straight, obtuse, simple, hyaline.—*Rabenhorstia tiliæ, Fr. S.V.S. p.* 410. *Fckl. exs. no.* 582.

Ascophore.—Perithecia deeply immersed in the inner bark; ostiola penetrating or concealed, surmounted by a circular greenish disc; asci stipitate, cylindrical; sporidia uniseriate, ovate-elliptic, uniseptate, slightly constricted, hyaline, greenish.—*Sphæria tiliæ, Tul. Ann. Sc. Nat.* v. *p.* 111. *Desm. exs. no.* 979 (1845). *Hercospora tiliæ, Tul. Carp.* ii. *p.* 154. *Fckl. Sym. Myc. p.* 187. *Valsaria tiliæ, De Not. Sfer. Ital.* 58. *Wuestneia monadelpha, Fckl. exs. no.* 594. *Valsa tilaginea, Curr. Phil. Trans.* (1857), *p.* 546, *t.* 25, *f.* 12. *B. & Br. Ann. N.H. no.* 865. *Cooke exs. no.* 378.

On lime twigs.

Remarkable for the green disc above the perithecia. Mr. Currey's plant does not appear to differ specifically from that of Tulasne.

2497. Valsa cratægi. *Curr.* "Hawthorn Valsa."

Perithecia irregularly globose; ostiola rather short; sporidia biseriate, oblong or elliptical, sometimes curved; endochrome 4, sometimes 2, partite, colourless, at length strongly constricted and uniseptate.—*Curr. Linn. Trans.* xxii. *p.* 278, *t.* 48, *f.* 135 *a. B. & Br. Ann. N.H. no.* 848. *Cooke exs. no.* 380.

On Hawthorn.

Sporidia (·0006-·0010 in.) ·015-·025 m.m. long. Of this species Messrs. Berkeley and Broome observe that Mr. Currey's figure of the sporidia accords with what they have seen in the early stage of growth, but at length they are strongly constricted, uniseptate, with two distinct nuclei in each articulation.

2498. Valsa stilbostoma. *Fr.* "Pallid disc Valsa."

Perithecia disposed in circles, covered with a waxy, dirty-white disc; ostiola prominent, scattered, bursting forth, and at length obliterating the disc; sporidia biseriate, colourless, acuminate-elliptic, constricted; endochrome bipartite.—*Fr. S.V.S. p.* 411. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 140. *S. stilbostoma*, *Fr. S.M.* ii. *p.* 403. *Fries. exs. no.* 145. *Valsa rhois*, *Cooke exs. no.* 245.

On various dead branches (except beech). [United States.]

Sporidia (·0007 in.) ·0177 m.m. long.

2499. Valsa oncostoma. *Duby.* "Locust tree Valsa."

Spermogonia.—Nestling in the wood, replete with a yellowish gelatine; spermatia oblong-lanceolate, simple, hyaline.

Ascophore.—Perithecia mostly circinating; ostiola long, convergent, crowded; asci elongated, sessile; sporidia oblong-lanceolate, uniseptate, quadrinucleate, hyaline.—*Fckl. exs. no.* 1730. *Sphæria oncostoma*, *Duby in Kl. exs. no.* 253. *Diaporthe oncostoma*, *Fckl. Sym. Myc. p.* 205.

On *Robinia pseudacacia*. Swanscombe.

2500. Valsa circumscripta. *Mont.* "Guelder rose Valsa."

Perithecia either simple and scattered, or 3-4 together, globoso-depressed, occupying the inner bark, at first covered by the cuticle, which at length vanishes, blackish; ostiola papillate, or conical; asci narrowly oblong or subcylindrical, sessile; sporidia narrowly fusiform, acute, hyaline, quadrinucleate, uniseptate (at length quadricellular).—*Mont. Syll. p.* 220. *Sphæria circumscripta*, *Fr. Ann. Sc. Nat.* i. *p.* 298, *t.* 13, *f.* 2 (*inaccurate*). *Diaporthe circumscripta*, *Fckl. exs. no.* 1991. *Diaporthe Beckhausii*, *Nke. Pyr. Germ.* i. *p.* 295.

On twigs of *Viburnum*. Darenth.

Although the fruit does not absolutely agree with Montagne's description, the sporidia being acute and usually only uniseptate, it appears to be the same species.

2501. Valsa enteroleuca. *Fr.* "White disc Valsa."

Orbicular, convex, free; stroma white; perithecia small; ostiola crowded, free, globose, or beaked, somewhat wrinkled; sporidia biseriate, colourless, oblong, acuminate at each end, constricted, often slightly curved, quadrinucleate, uniseptate.—

S. enteroleuca, *Fr. S.M.* ii. *p.* 381. *Eng. Fl.* v. *p.* 247. *Bull. t.* 432, *f.* 1. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 113.

On dried branches. [Mid. Carolina.]

Pustules 2-3 lines broad, at length by the decay of the bark free; stroma white below, darker above, being almost obliterated by the crowded necks of the small perithecia; ostiola rather rugged, globose or beaked on the same stick.—*M. J. B.* Sporidia (·0005-·0007 in.) ·015-·017 m.m. Perithecia very numerous in each pustule, deeply imbedded in a very white stroma, when cut across horizontally, a very well defined black line is seen which arises from the wood surrounding the perithecia being blackened, thereby causing the appearance of a conceptaculum, but there is not really any.—*F. C.*

* Sporidia appendiculate.

2502. Valsa taleola. *Fr.* "Ciliated oak Valsa."

Loosely circumscribed; stroma cortical; perithecia crowded in the centre; disc white; ostiola even, immersed, punctiform; sporidia oblong, very obtuse, uniseptate, with cilia on each side of the septum and at either extremity.—*Fr. S. V. S. p.* 411. *Fckl. exs. no.* 2001. *B. & Br. Ann. N.H. no.* 849, *t.* 9, *f.* 11. *Cooke exs. no.* 252. *V. luteola*, *Berk. Outl. p.* 389. *S. taleola*, *Fr. S.M.* ii. *p.* 390. *Eng. Fl.* v. *p.* 249. *S. angulata*, *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 122; xxv. *p.* 246. *Phil. Trans.* (1857), *p.* 550, *t.* 25, *f.* 20-22. *Diatrype sordida*, *B. & Br. Ann. N.H. no.* 838. *Aglaospora taleola*, *Tul. Carp.* ii. *p.* 168.

On oak branches. Common. [Low. Carolina.]

Sporidia uniseriate, seldom biseriate, colourless, or pale sea-green, obtuse, constricted in the middle, furnished with four cilia, one proceeding from each pole, and one from the middle of each side; endochrome usually granular (·0008-·0012 in.) ·02-·03 m.m. long. Sometimes when the endochrome is oleaginous, and not granular, the appearance of the sporidia is quite different.—*F.C.*

2503. Valsa thelebola. *Fr.* "Tailed Alder Valsa."

Pulviniform or conical, depressed or subtruncate; asci oblong; sporidia biseriate, amber-coloured, with a greenish tint or hyaline, slightly curved, obtuse at the extremities, commonly ciliate at each end, uniseptate.—*Curr. Linn. Trans.* xxii. *p.* 280, *t.* 48, *f.* 157-159. *Cooke Seem. Journ.* (1866), *f.* 8. *Sphæria thelebola*, *Fr. S.M.* ii. *p.* 408, *no.* 193. *Sphæria ditissima*, *Tul. Ann. Sc. Nat.* 1856, iii. *p.* 117. *Aglaospora thelebola*, *Tul. Carp.* ii. *p.* 166, *t.* 21, *f.* 1-18.

On alder. Sept. Irstead, Norfolk.

Unless care be exercised in the examination, the terminal cilia may be overlooked.

Series 4. **Euvalsa.** Sporidia coloured, simple, or uniseptate.

2504. Valsa turgida. *Fr.* "Brown disc Valsa."

Pustulate; perithecia globose, nearly erect, close; ostiola obtuse, convex, at length exserted from a minute narrow disc; sporidia uniseriate, at first pale then dark opaque brown, elliptical, subacuminate.—*Fr. S.V.S. p.* 412. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 139. *S. turgida, Fr. S.M.* ii. *p.* 400. *Fries. exs. no.* 262. *Eng. Fl.* v. *p.* 250. *Wuestneia sphinctrina, Fckl. exs. no.* 591. *Anthostoma turgidum, Nke. Pyr. Germ.* i. *p.* 121.

On branches of beech. [Mid. Carolina.]

The branches on which it grows, and which it generally surrounds, are of a bright red-brown. The perithecia vary in size and in the number grouped together, which is from 3-8, their ostiola collected in an erumpent brown disc. Sporidia (·0003-·0004 in.) ·0076-·01 m.m.

2505. Valsa convergens. *Fr.* "Convergent Valsa."

Perithecia about six together, minute, ovate, circinating, converging, as well as the round, somewhat attenuated, erumpent ostiola; sporidia dark brown, subcymbiform, irregular, frequently constricted.—*Fr. S.V.S. p.* 411. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 155. *S. convergens, Tode. f.* 111. *Sow. t.* 374, *f.* 6. *Fr. S.M.* ii. *p.* 410. *Eng. Fl.* v. *p.* 252.

On smooth bark *(Platanus occidentalis).*

The perithecia are under the bark so as not to be seen above, except by the undulations of the bark.—*F. C.*

2506. Valsa parmularia. *Berk.* "Triangular Valsa."

Small, pustulæform; perithecia circinating, laterally compressed; ostiola scarcely distinct, umbonate; asci linear; sporidia broadly oblong, uniseptate, brown.—*Berk. Hook. Journ. no.* 308. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 163.

On oak. King's Cliffe.

Scarcely a line broad, forming little pustules with a black umbo; perithecia circinating, closely packed, so as to present, when cut through, a triangle with one curved and two straight sides; ostiola in general indistinct; asci linear, containing 8 brown broadly oblong uniseptate sporidia, like those of many *Diplodiæ*.

This curious species has been known to me for some years, but has never been published in consequence of the doubt attached to its position, because of its growing on living bark. Externally it is not unlike *Sph. turgida*. The perithecia vary from 5-10, always laterally compressed, so that a section reminds one of the carpels of an orange.—*M.J.B.*

Series 5. **Pseudovalsa.** Sporidia multiseptate, hyaline or coloured.

2507. Valsa detrusa. *Fr.* "Barberry Valsa."

Conical; stroma bright yellow, immersed in the wood, encircled above with a conceptaculum; ostiola united, umbilicate; sporidia biseriate, colourless; endochrome quadripartite, elliptic. —*Sph. detrusa, Fries exs. no.* 6. *Berk. Mag. Zool. & Bot. no.* 18. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 117. *Wuestneia æquilineariformis, Fckl. exs. no.* 588. *Diaporthe detrusa, Fckl. Sym. Myc. p.* 205.

On dead barberry.

Sporidia (·0006 in.) ·015 m.m. long. Endochrome divided into four, sometimes apparently into only two portions, elliptic, subobtuse or subacuminate. —*F.C.*

2508. Valsa platanoides. *Berk.* "Sycamore Valsa."

Perithecia circinating; disc irregular, obliterated by the crowded ostiola; sporidia triseptate, or apparently so, sometimes mucronate.—*S. platanoides, Pers. Syn. p.* 45. *S. stilbostoma, var.* γ. *Eng. Fl.* v. *p* 251. *Curr. Linn. Trans.* xxii. *t.* 48, *f.* 140 *a.*

On sycamore.

Considered by Fries a variety of *V. stilbostoma*. Sporidia (·0010-·0011 in.) ·025-·028 m.m. long.

2509. Valsa tetratrupha. *B. & Br.* "Four-spored Valsa."

Pustules minute; perithecia ovate; asci linear, sporidia four, fenestrate.—*B. & Br. Ann. N.H. no.* 852, *t.* 10, *f.* 13.

On twigs of alder.

Forming minute pustules which pierce the cuticle by means of the flat pallid disc, studded with black ostiola; asci linear; sporidia four (·0009-·001 in.) ·022-·025 m.m. long, yellow-brown, at first uni triseptate, at length fenestrate. Fruit strongly resembling that of *S. elongata.—B. & Br.*

It is considered by some mycologists that the present species and *Valsa fenestrata* are not really distinct, but forms of the same species.

2510. Valsa fenestrata. *B. & Br.* "Fenestrate Valsa."

Perithecia brown; ostiola obsolete; sporidia elliptic-oblong, uni-triseptate, appendiculate at either end, fenestrate.—*B. & Br. Ann. N.H. no.* 853, *t.* 10, *f.* 14. *Fckl. exs. no.* 1999. *Fenestrella princeps, Tul. Carp.* ii. *p.* 207. *Fckl. Sym. Myc. t.* 6, *f.* 15.

On dead oak twigs and alder.

Perithecia forming little pustules, brownish ; disc narrow ; ostiola obsolete ; sporidia ·002 in. long, elliptic-oblong, uniseptate with a small appendage at either extremity ; endochrome divided into innumerable cells, septum at length obsolete, and surface of the sporidia granulated. In the plant on alder, sporidia (·002-·003 in.) ·05-·07 m.m. long. There are sometimes three septa, and the appendages are more acute.—*B. & Br.*

2511. Valsa profusa. *Fr.* "Locust tree Valsa."

Spermogonia.—Spermatia, filiform, uncinate. *Cytispora leucosperma, Fr. exs. no.* 156.

Microstylospores lanceolate, continuous.—*Tul. Carp.* ii. p. 159.

Ascophore.—Perithecia globose, circumscribed with a variable black line, immersed in a broadly expanded subiculum ; ostiola slightly prominent, seated in a minute dirty-white disc ; sporidia 4-8, with a gelatinous envelope when young, becoming olive-brown, oblong elliptic, quadrilocular, apiculate.—*Fr. S.V.S. p.* 411. *S. profusa. Fr. S.M.* ii. *p.* 392. *Fries. exs. no.* 11. *Moug. exs. no.* 871 (*partly*) *Eng. Fl.* v. *p.* 249. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 128. *Aglaospora profusa, Tul. Carp.* ii. *p.* 159. *Fckl. exs. no.* 583.

On branches of *Robinia pseudacacia.*

Sporidia (·001-·002 in.) ·025-·05 m.m.

2512. Valsa aglæostoma. *B. & Br.* "Small tufted Valsa."

Perithecia ovate ; ostiola crowded, shining ; sporidia oblong, 4 septate, torulose.—*B. & Br. Ann. N.H. no.* 862, *t.* 10, *f.* 17.

On elm twigs. Leicestershire.

Perithecia in groups of from 4 to 6, ovate ; ostiola crowded, cylindrical, shining ; sporidia oblong 4 septate, constricted at each septum (·0008-·001 in.) ·02-·025 m.m. long. Resembling somewhat *V. hypodermia,* but differing essentially in the fruit and in other points.—*B. & Br.*

2513. Valsa Innesii. *Curr.* "Innes's Tailed Valsa."

Perithecia irregularly globose ; ostiola elongated, and frequently thickened at the apex ; sporidia biseriate, colourless, thrice constricted, acute at either end, often appendiculate.—*Curr. Linn. Trans.* xxii. *p.* 281, *t.* 48, *f.* 116. *B. & Br. Ann. N.H. no.* 863. *Fckl. exs. no.* 1993. *Diaporthe Innesii, Fckl. Sym. Myc. p.* 204.

Sporidia (·001-·0012 in.) ·025-·03 m.m. long.
Externally much resembling *V. pulchella,* but smaller, and differing altogether in fructification from that species.

2514. Valsa vestita. *Fr.* "Woolly Valsa."

Spermogonia.—Spermatia cylindrical, straight.

Ascophore.—Circinating; perithecia crowded, globose, covered at first with a dense, pallid, yellowish, sub-evanescent woolly down; ostiola united; sporidia elliptic, transversely and longitudinally septate. *Curr. Phil. Trans.* (1857), *p.* 546. *Linn. Trans.* xxii. *t.* 48, *f.* 161. *Fr. S.M.* ii. *p.* 410. *B. & Br. Ann. N.H. no.* 866. *Thyridium vestitum, Fckl.*

On dead twigs (beech).

Sporidia (·0006-·0008 in.) ·015-·02 m.m. long. Mr. Currey believes that the woolly covering produces as macrostylospores a species of *Stegonosporium*.

2515. Valsa hapalocystis. *B. & Br.* "Velvety Valsa."

Scattered, covered; perithecia subglobose, delicate, minutely tomentose, neck oblique, constricted below, shortly fusiform; sporidia oblong-elliptic, appendiculate at either end, biseptate.—*B. & Br. Ann. N.H. no.* 615, *t.* 10, *f.* 12. *Cooke exs. no.* 253 (sub *Sphæria*). *Calospora hapalocystis, Fckl. Sym. Myc. p.* 191. *Hapalocystis Berkeleai, Fckl. exs. no.* 585.

On dead plane twigs. Batheaston.

The perithecia are peculiarly delicate, and not so decidedly tomentose as in *V. vestita*.

D. *Sphæriei.*

Cæspitose—	
Perithecia carbonaceous, erumpent	*Cucurbitaria.*
Perithecia waxy, astomous	*Gibbera.*
Scattered—	
Perithecia immersed, sporidia oozing out and staining the matrix	*Massaria.*
Perithecia erumpent. Ostiola large, compressed	*Lophiostoma.*
Perithecia carbonaceous, pierced	*Sphæria.*
Perithecia membranaceous, innate	*Sphærella.*
Perithecia fragile, hairy, superficial	*Venturia.*
Perithecia sclerotioid	*Pyrenophora.*
Perithecia membranaceous, rostrate, sporidia oozing at the ostiolum	*Ceratostoma.*
Perithecia membranaceous, scutiform	*Microthyrium.*
Perithecia astomous, reticulated. Sporidia subglobose.	*Orbicula.*
Perithecia mouthless, then pierced. Parasitic	*Stigmatea.*
Perithecia astomous, concealed, at length splitting	*Hypospila.*
Perithecia obsolete; nucleus immersed	*Isothea.*
Perithecia elliptic, bursting longitudinally	*Dichaena.*
Perithecia elongated, often fringed at the mouth. Parasitic	*Capnodium.*

Gen. 352. **CUCURBITARIA**, Gray.

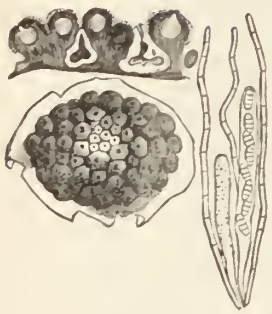


Fig. 389.

Cæspitose, erumpent; perithecia globose, depressed, or minutely papillate; sporidia plurilocular, and cellular, or two to four celled and hyaline.—*Tul. Carp.* ii. *p.* 214. (*Fig.* 389.)

2516. Cucurbitaria laburni. *De Not.* "Laburnum Cucurbitaria."

Ascophore.—Cæspitose; stroma subcompact; perithecia globose, rugulose, black; ostiola papillæform; sporidia multicellular, dark brown.—*Tul. Carp.* ii. *p.* 215, *t.* 27. *De Not. Soc. Critt. Ital.* (1863), iv. *p.* 214. *Fckl. exs. no.* 965. *Sphæria laburni, Pers. Syn. p.* 50. *Nees. f.* 325. *Fr. S.M.* ii. *p.* 413. *Fries. exs. no.* 34. *Moug. exs. no.* 873. *Eng. Fl.* v. *p.* 253. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 179.

On dead branches of laburnum. (*Fig.* 389.)

2517. Cucurbitaria elongata. *Grev.* "Elongated Cucurbitaria."

Macrostylospores ovate or ovate-oblong, 3-5 septate, dark.

Microstylospores linear ovate, simple.

Ascophore.—Black; stroma very long, ambient, effused; perithecia at first immersed, then erumpent, subcæspitose, globose, marked with a depressed ring round the papillæform ostiola; sporidia dark brown, constricted in the middle, multicellular.—*Grev. t.* 195. *Fckl. exs. no.* 970. *Tul. Carp.* ii. *p.* 217. *Rabh. exs. no.* 727. *Sphæria elongata, Fr. S.M.* ii. *p.* 422. *Fries. exs. no.* 33. *Moug. exs. no.* 875. *Eng. Fl.* v. *p.* 255.

On dead laburnum, *Robinia*, &c. [United States.]

2518. Cucurbitaria spartii. *De Not.* "Broom Cucurbitaria."

Ascophore.—Black; stroma covered, ambient, effused; perithecia erumpent, ovate, aggregated and confluent; ostiola obtuse; sporidia uniseriate, dark brown, constricted in the middle, acuminate, multicellular.—*De Not. Schema p.* 40. *Tul. Carp.* ii. *p.* 219. *Fckl. exs. no.* 974. *Sphæria Spartii, Fries. exs. no.* 234. *Schm.*

exs. no. 178. *Moug. exs. no.* 664. *Fr. S.M.* ii. *p.* 424. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 189. *Cooke exs. no.* 388.

On dead broom.

Always covered with the bark when young, then erumpent; ostiola truncate, at length pierced, perforating the cuticle. Mr. Currey (Micro. Journ. vii. p. 234) says that this is identical with *S. elongata*, Fr. Sporidia (·0011-·0012 in.) ·025-·03 m.m. long.

2519. Cucurbitaria acervata. *De Not.* "Top-shaped Cucurbitaria."

Ascophore.—Cæspitose; perithecia turbinate, nearly even, astomous, black, collapsing, and cup-shaped; sporidia biseriate, colourless, hyaline, curved.—*De Not. Schema p.* 40. *Tul. Carp.* ii. *p.* 218. *Fckl. exs. no.* 2169. *Sphæria acervata, Fr. S.M.* ii. *p.* 416. *Berk. exs. no.* 174. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 184.

On a dead apple tree. Apethorpe. [Mid. Carolina.]

Sporidia (·0003-·0005 in.) ·0076-·0127 m.m. long.

2520. Cucurbitaria berberidis. *Gray.* "Barberry Cucurbitaria."

Spermogonia.—Spermatia minute, cylindrical.

Ascophore.—Cæspitose; perithecia globose, mouthless, at first red, then red-brown, at length rimoso-rugose, black; sporidia uniseriate, yellow then brown, constricted in the middle, acuminate, multicellular, muricated.—*Grev. t.* 84. *Tul. Carp.* ii. *p.* 219. *Sphæria berberidis, Fr. S.M.* ii. *p.* 415. *Fries. exs. no.* 35. *Moug. exs. no.* 874. *Fr. Obs.* i. *t.* 4, *f.* 3. *Eng. Fl.* v. *p.* 254. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 177.

On dead branches of barberry. [Mid. Carolina.]

Sporidia (·0011-·0016 in.) ·025 ·035 m.m.

2521. Cucurbitaria macrospora. *Tul.* "Large spored Cucurbitaria."

Conidia.—Disc slightly depressed; conidia fusiform, 7-12 septate, pellucid above, greatly elongated and curved back.—*Coryneum macrosporum, Berk. Eng. Fl.* v. *p.* 355. *Rabh. F.E. no.* 75. *Sporidesmium vermiforme, Fres.* ii. *t.* 6, *f.* 56-58. (See no 1393, ante.)

Ascophore.—Perithecia opaque, rather rough; ostiola at length pierced; asci clavate; sporidia large, shortly fusiform, dark-brown, ultimately triseptate.—*Tul. Carp.* ii. *p.* 221, *t.* 26. *f.*

6-14. *Fckl. exs. no.* 2047. *Melogramma oligosporum, B. & Br. Ann. N.H. no.* 895, *t.* xi. *f.* 38. *Sphæria macrospora, Desm. Ann. Sc. Nat.* (1848), *p.* 350. *Desm. exs. no.* 1756. *Curr. Micr. Journ.* (1859), *Melanconis macrospora, Tul. Ann. Sc. Nat. t.* ix. *f.* 19. iv. *t.* 5, *p.* 110.

On dead bark. Twycross.

Forming roundish patches bursting through the cuticle; perithecia opaque, rather rough; asci clavate; sporidia shortly fusiform (·0022 in.) ·06 m.m. long, at first surrounded by a hyaline border, changing from uniseptate to triseptate; dissepiments, especially the central one, constricted.—*B. & Br.*

2522. Cucurbitaria naucosa. *Fckl.* "Elm Cucurbitaria."

Pycnidia.—*Diplodia melaena, Lev. Rabh. F.E.* 348. *Fckl. exs.* 542.

Macrostylospores.—One to four septate, muriform.—*Fckl. exs. no.* 92.

Ascophore.—Cæspitose; perithecia collected in heaps, globose, even, brownish-black, astomous; asci clavate; sporidia oblong-ovate, multicellular.— *Fckl. Sym. Myc. p.* 173. *Fckl. exs. no.* 2042. *Sphæria naucosa, Fr. S.M.* ii. *p.* 516. *Kunze. M.H.* ii. *p.* 36. *B. & Br. Ann. N.H. no.* 974, *t.* 17, *f.* 27.

On elm. Jan. Batheaston.

Sporidia with vertical and transverse septa (·001 in.) ·025 m.m. long. The perithecia when old are almost black, the ostiola obsolete, the surface smooth and shining, with generally a single fissure at the apex.—*B. & Br.*

2523. Cucurbitaria populina. *Fr.* "Poplar Cucurbitaria."

Cæspitose; stroma compact; perithecia ovate, even, black: ostiola papillæform; asci cylindrical, stipitate; sporidia uniseriate, uniseptate, pale brown.—*Fr. S.V.S. p.* 390. *Sphæria populina, Pers. Obs.* ii. *t.* 5, *f.* 10, 11. *Fr. S.M.* ii. *p.* 413. *Fckl. exs. no.* 966. *Berk. Mag. Zool. & Bot. no.* 96, *vol.* ii. *t.* 7 *a-c. Otthia populina, Fckl. Sym. Myc. p.* 170.

On ash.

2524. Cucurbitaria cupularis. *Fr.* "Cup-like Cucurbitaria."

Cæspitose; perithecia globose, rugulose, mouthless, black, collapsing, and then cup-shaped; asci cylindrical, stipitate; sporidia biseriate, cylindrical, curved, obtuse, hyaline.—*Fr. S.V.S. p.* 391. *Fckl. exs no.* 968. *Sphæria cupularis, Pers. Syn. t.* 1, *f.* 9, 10. *Fr.*

S.M. ii. *p.* 416. *Fries. exs. no.* 231. *Moug. exs. no.* 771. *Eng. Fl.* v. *p.* 254. *Nitschkia Fuckelii, Nke. Fckl. Sym. Myc. p.* 165, *t.* 3, *f.* 1.

On dead branches (plum, elm, &c.).

Gen. **353.** **GIBBERA**, Fr.

Cæspitose; perithecia between waxy and horny, aculeolate, astomous; sporidia translucid.—*Fr. S.V.S. p.* 402. *Cooke Brit. Fungi, p.* 158.
(Fig. 390.)

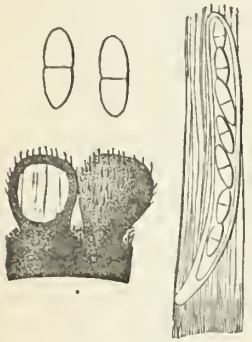


Fig. 390.

2525. Gibbera vaccinii. *Fr.*
" Cowberry Gibbera."

Cæspitose, superficially innate; perithecia subglobose, mouthless, jet black, at first villous, then naked; sporidia uniseriate, nearly colourless, almost almond-shaped, slightly constricted, uniseptate.—*De Not. Sfer. Ital. t.* 93. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 49. *Sph. Vaccinii, Sow. t.* 373, *f.* 1. *Fr. S.M.* ii. *p.* 409. *Fries exs. no.* 51. *Eng. Fl.* v. *p.* 254. *Moug. exs. no.* 665.

On living branches of *Vaccinium Vitis-idæa.*

Disposed in roundish tufts which generally become confluent, and form longitudinal, irregular masses immediately beneath the bunch of leaves.—*M.J.B.* Sporidia (·0006 in.) ·015 m.m. long. *(Fig.* 390.)

2526. Gibbera Saubinetii. *Mont.* " Herb Gibbera."

Emergent; perithecia solitary or aggregated on a brown stroma, globose, rugulose, at length collapsed and umbilicate; asci diffluent; sporidia fusiform, hyaline, lunately curved, 3-5 septate.—*Mont. Syll. p.* 252. *B. & Br. Ann. N.H. no.* 868. *Mont. Fl. Alg. p.* 479.

On herbaceous stems and elm twigs.
[Low. & Mid. Carolina.]

This has the violet walls of *N. pulicaris*, but the fruit is much larger, that on elm may be considered as a variety with ovate perithecia and rather large sporidia (·0012 in. long) and rather torulose. The sporidia of the typical form are (·001 in.) 025 m.m. long.

GIBBERA PULICARIS, *Fr.*—See *Nectria pulicaris.*

Gen. **354.** **MASSARIA**, De Not.

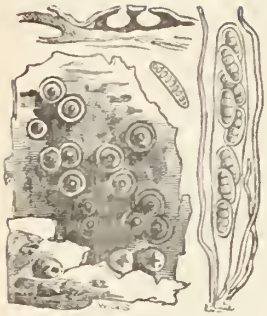


Fig. 391.

Perithecia coriaceous or subcarbonaceous, immersed, with an erumpent ostiolum; sporidia large, septate, sometimes simple, involved in mucus (or with a thick hyaline epispore) oozing out, and usually staining the matrix.—*Berk. Outl. p.* 402. *Tul. Carp.* ii. *p.* 223. (*Fig.* 391.)

* Sporidia septate.

2527. **Massaria siparia.** *Tul.* "Woolly Massaria."

Pycnidia.—Perithecia sub-solitary, lenticular; stylospores obclavate, fasciculate, 3-5 septate, brown, terminal cell hyaline.—*Prosthemium betulinum, Kze. M.H.* i. *t.* i. *f.* 10. *Fr. S.M.* iii. *p.* 484. *Eng. Fl.* v. *p.* 297. *Curr. Phil. Trans.* cxlvii. *t.* 26, *f.* 30, 31. *Corda. Ic.* iii. *f.* 67.

Ascophore.—Covered, scattered; perithecia large, depressed, woolly; ostiola obtuse, very short; asci clavate, large; sporidia brown, oblong, cymbiform, cellular, involved in mucus.—*Tul. Carp.* ii. *p.* 232. *Sphæria siparia, B. & Br. Ann. N.H. no.* 625, *t.* 9, *f.* 8. *Rabh. F.E. no. Curr. Linn. Trans.* xxii *t.* 58, *f.* 98. *Fckl. exs. no.* 2011. *Fckl. Sym. Myc. t.* 6, *f.* 5.

On birch. Feb.

The perithecia are clothed with a more or less dense ferruginous wool, depressed, covered by the cuticle. Sporidia (·002-·0024 in.) ·05-·06 m.m. long.

2528. **Massaria argus.** *Tul.* "Eyed Massaria."

Pycnidia.—Globose, densely clothed with white or cinereous flocci: stylospores large, on septate peduncles, at length oblong-elliptic, multilocular, at first with a gelatinous envelope, oozing out and forming a black mass.—*Hendersonia polycystis, B. & Br. Ann. N.H. no.* 415. *Rabh. F.E. no.* 264. *Myxocyclus confluens, Fres. Beitr. t.* 7, *f.* 41-45.

Ascophore.—Covered; perithecia large, depressed, collapsed,

opaque ; asci large, clavate; sporidia biseriate, oblong, slightly curved, ocellate, 5-6 septate, involved in mucus.—*Tul. Carp.* ii. *p.* 227. *Sphœria argus, B. & Br. Ann. N.H. no.* 626, *t.* 9, *f.* 9. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 95. *Fres. Beitr. t.* 7, *f.* 7-17. *Rabh. exs. no.* 259.

On dry birch twigs.

The *Hendersonia* referred to this species by Tulasne is referred by Currey to *Diatrype lanciformis, Fr.* (See p. 436, ante.)

Entirely concealed by the enticle, scattered ; perithecia depressed collapsed, dull, as if very minutely pulverulent ; ostiolum minute ; asci clavate, large; sporidia biseriate, oblong, slightly curved when seen laterally, at first consisting of two joints ; these soon acquire seven endochromes, of which four belong to the larger division, at a later period they become much darker, and true septa are formed varying in number from five to six. Till they acquire this dark tint they have a thick pellucid gelatinous coat.—*B. & Br.* Sporidia ·002-·0024.

2529. Massaria fœdans. *Fr.* "Flask-spored Massaria."

Ascophore.—Scattered; perithecia immersed, depresso-globose ; ostiolum papillæform ; sporidia biseriate, brown, biseptate, lageniform, apicular cell lighter coloured, with a gelatinous coat. *Fr. S.V.S. Fckl. Sym. Myc. t.* 6, *f.* 4. *Fckl. exs. no.* 2009. *Sph. fœdans. Fr. S.M. Corda. Sturm. t.* 54. *S. amblyospora, B. & Br. Ann. N.H. no.* 627, *t.* 10, *f.* 10. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 99.

On dead branches of elm.

Scattered, scarcely visible externally ; asci large, clavate, paraphyses flexuous ; sporidia large, at first hyaline, consisting of two subconical articulations placed base to base, one of these gradually increases in diameter and becomes very obtuse, a septum is then formed at the base of the smaller articulation, and sometimes, though rarely, there is a third septum in the other cells. In every stage, except in extreme age, when ejected they have a gelatinous coat. Distinguished from *M. inquinans* by the peculiar form of the sporidia, and especially in their mode of formation.—*B. & Br.*

2530. Massaria pupula. *Tul.* "Clear-spored Massaria"

Pycnidia.—*Stegonosporium pyriforme, Corda Ic.* iii. *f.* 61.

Ascophore.—Scattered; perithecia covered, orbicular, concentrically striate, black ; orifice when stripped of the epidermis whitish ; papilla yellowish; sporidia oblong, straight, rarely curved, obtuse, divided by a septum into two unequal parts—the upper trilocular, the lower bilocular.—*Tul. Carp.* ii. *p.* 225. *Fckl. exs. no.* 2010. *Fckl. Sym. Myc. t.* 6, *f.* 2. *Sph. pupula, Fr. S.M.* ii. *p.* 484. *Fries. exs. no.* 16, 317. *Hercospora pupula, Berk. Outl. p.* 402.

On *Philadelphus coronarius*. Apethorpe.

The papilla is blackish, bursting the epidermis longitudinally and frequently itself longitudinal.—*M.J.B.* Sporidia ·04 m.m. (·0015 in.) long, ·016 m.m. (·0005 in.) broad.

2531. Massaria inquinans. *Tode.* "Large-spored Massaria."

Pycnidia.—Solitary; microstylospores whitish, narrowly ovate-oblong, or cylindrical, obtuse, straight, simple.

Ascophore.—Gregarious; peritheeia immersed, globose, even, smooth, covered with the epidermis; papilla erumpent, black; sporidia ovate-oblong, dark brown, triseptate, large, involved in mucus.—*Cooke exs. no.* 258. *Fckl. Sym. Myc. t.* 6, *f.* 7. *Fckl. exs. no.* 803. *Berk. Outl. p.* 402. *Massaria Bulliardi*, *Tul. Carp.* ii. *p.* 236. *Sphæria inquinans*, *Tode. f.* 85. *Fr. S.M.* ii. *p.* 456. *Nees. f.* 356. *Eng. Fl.* v. *p.* 269. *S. ellipsosperma*, *Sow. t.* 372, *f.* 3. *Variolaria*, *Bull. t.* 492, *f.* 3. *Sphæria gigaspora*, *Desm. Berk. Outl. p.* 398. *Curr. Linn. Trans.* xxii. *p.* 326, *t.* 59, *f.* 100. *Cooke exs. no.* 257. *Sphæria Corni. Mont. Ann. Sc. Nat.* i. *p.* 340, *t.* 13, *f.* 6.

On branches of sycamore, maple, birch, cornel, &c.

By an error *Stilbospora macrosperma*, B. & Br. is referred to this species at p. 468. (See no. 1391 ante), instead of *Melanconis Berkeleii*, Tul. no. 2457.

2532. Massaria bufonia. *Tul.* "Oak Massaria."

Scattered; peritheeia globose, rather depressed; ostiola short, perforating the bark; asci cylindrical; sporidia dark brown, uniseriate, oblong, uniseptate, involved in mucus.—*Tul. Carp.* ii. *p.* 237. *Sphæria bufonia. B. & Br. Ann. N.H. no.* 629, *t.* 10, *f.* 13. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 102.

On small dead branches of oak. Easton.

Scattered over the branches, which are rough with the little penetrating ostiola. Perithecia globose, slightly depressed; ostiolum central, papillæform, with scarcely any neck. Asci cylindrical, containing a single row of oblong uniseptate sporidia, which have a thick gelatinous coat, which ultimately vanishes.—*B. & Br.*
Sporidia (·0008-·0011 in.) ·02-·025 m.m. long.

2533. Massaria eburnea. *Tul.* "Pale-spored Massaria."

Pycnidia.—Large, depressed, covered with the cuticle; stylospores cylindrical, oblong, with 7 or 8 endochromes, hyaline, oozing out in an irregular mass.—*Septoria princeps, B. & Br. Ann. N.H.* (1861), vii. *p.* 380, *t.* 15. *f.* 11.

Ascophore.—Hypodermal, pulviniform or conical, depressed or subtruncate; perithecia circinating, with long necks; asci large, obovate-cylindrical, obtuse, 8-spored; sporidia elliptical or broadly ovate, quadrilocular, constricted at the joints, obtuse, smooth and pallid.—*Tul. Carp.* ii. *p.* 239, *t.* 25, *f.* 5-9. *Cooke Seem. Journ. t.* 45, *f.* 9. *Fckl. Sym. Myc. t.* 6, *f.* 8. *Fckl. exs. no.* 2158. *Cooke exs. no.* 371. *Sphæria pupula, var. minor, Desm. exs.* (1851), *no.* 1764. *Ann. Sc. Nat.* (1852), xviii. *p.* 362.

On beech. Shere, January, 1866 (Dr. E. Capron). (*Fig.* 391.)

2534. Massaria Currei. *Tul.* "Currey's Lime Massaria."

Pycnidia.—Mixed with the ascophores; stylospores broadly ovate, unilocular.

Ascophore.—Perithecia black, acutely papillate; sporidia biseriate, dark brown, lageniform, uniseptate, with a gelatinous coat.—*Tul. Carp.* ii. *p.* 231. *Sphæria Tiliæ, Curr. Linn. Trans.* xxii. *t.* 59, *f.* 104.

On lime.

"It is not uncommon, and cannot be mistaken for any other if attention be paid to its fruit, and to its growing upon lime."—*F.C.*

2535. Massaria holoschista. *Tul.* "Biconic Massaria."

Pycnidia.—Sublentiform, black, covered; stylospores brown, 12-20 connate, in a stellate manner, at length ejected in tendrils. *Prosthemium stellare, Reiss. Bot. Zeit.* 1853, *t.* 3, *f.* 28-31. *B. & Br. Ann. N.H. no.* 939, *t.* 15, *f.* 10. (See also fig. 173, ante.)

Ascophore.—Perithecia greenish-black, at length collapsed, surrounded by whitish flocci; sporidia biconical, mucous; septum passing through the gelatine.— *Tul. Carp.* ii. *p.* 234. *Sphæria holoschista, B. & Br. Ann. N.H. no.* 977, *t.* 17, *f.* 30.

On alder. West of England.

Perithecia blackish-green, collapsed, and then looking like a *Peziza* surrounded by whitish hairs. Sporidia surrounded by gelatine, biconical, uniseptate, constricted at the septum, which passes completely through the mucous envelope, length when the gelatine has been absorbed (·0015-·0018 in.) ·03-·04 m.m. long.—*B. & Br.*

** Sporidia simple=*Hypocopra.*

2536. Massaria fimeti. *Fr.* "Dung Massaria."

Spermatia cylindrical, straight, hyaline, simple.

Ascophore.—Crust-like, immersed, black; perithecia oblong,

at length connate; ostiola elongated, conical, emergent; asci cylindrical; sporidia uniseriate, ovate-oblong, simple, opaque, nearly black.—*Sph. fimeti, Pers. Syn. p.* 64. *Fr. S.M.* ii. *p.* 373. *Fries. exs. no.* 269. *Eng. Fl.* v. *p.* 246. *Hypocopra fimeti, Fckl. Sym. Myc. p.* 240. *Fckl. exs. no.* 1001. *Sphæria equina, Fckl. exs. no.* 1802.

On horse and cow dung. Appin. [Mid. Carolina.]

Gen. **355.** **LOPHIOSTOMA,** De Not.

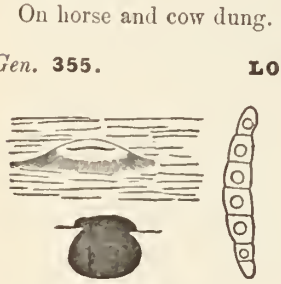


Fig. 392.

Perithecia carbonaceous, erumpent; ostiolum large, compressed. Sporidia two or many celled, coloured or hyaline. (*Fig.* 392).

2537. **Lophiostoma macrostoma.** *Fr.* "Large-mouthed Lophiostoma."

Perithecia scattered, at first immersed, at length emergent, black; ostiolum compressed, labiate; sporidia uniseriate, yellow, then brown, 7-septate, the last joint at each extremity small and colourless.—*De Not. Schema, p.* 45. *Cooke Trans. Bot. Ed. t.* 6, *f.* 1. *Sphæria macrostoma, Tode. f.* 76, 77. *Fr. Sys. Myc. vol.* ii. *p.* 469. *Fries. exs. no.* 345. *B. & Br. Ann. N.H. no.* 881. *Desm. exs. no.* 772. *Curr. Linn. Trans.* xxii. *p.* 321, *pl.* lviii. *fig.* 65 ? *Fckl. exs. no.* 923.

On bark of sycamore and on holly twigs.

Sporidia (·0014 in.) ·035 m.m. long. Mr. Currey's measurement is ·0010-·0012 in. long. Messrs. Berkeley & Broome's description of the sporidia is "·0008 in. long, oblong torulose, triseptate, very like those of *S. Aspegrenii*." My specimens accord with those published by Desmazieres and Fuckel. The sporidia figured by Mr. Currey (fig. 65) appear to belong to the present species.

2538. **Lophiostoma bicuspidata.** *Cooke.* "Two-horned Lophiostoma."

Perithecia scattered, black, immersed, elevating and pushing through the matrix with their narrow elongated ostiola; asci clavate; sporidia biseriate, 5 septate, with occasional transverse septa, constricted, brown, each extremity at first furnished with a hyaline beak bent at both ends in the same direction, so as to

give a curved appearance to the sporidia.—*Cooke Trans. Bot. Soc. Edin. vol.* ix. *t.* 6, *f.* 4. *Sphæria macrostoma, Curr. Linn. Trans.* xxii. *p.* 321, *pl.* lviii. *f.* 64?

On decorticated twigs. Oct. Shere, Surrey.

var. β. Sporidia larger (·0012 in.) ·03 m.m. long, with no transverse septa; otherwise identical.

On dead *Clematis vitalba*. April. Shere.

This species is very distinct from *Sphæria macrostoma*, Tode. It is possible that Mr. Currey's fig. 64 may belong to it. Externally there is considerable resemblance, except that the perithecia are smaller. The sporidia are (·0009 in.) ·0228 m.m. long, and in *var.* β. (·0012 in.) ·03 m.m. long.

2539. Lophiostoma viridaria. *Cooke.* "Green-spot Lophiostoma."

Perithecia scattered over conspicuous green spots an inch or more in length, semi-immersed, black; ostiolum, linear, asci cylindrical; sporidia uniseriate, triseptate, attenuated towards each extremity, constricted at the septa, brown, with a large nucleus in each cell. When free the sporidia exhibit a distinct outer transparent membrane which invests them.—*Cooke Trans. Bot. Ed. vol.* ix. *t.* 6, *f.* 2.

On decorticated twigs of Maple. Jan. Shere, Surrey.

The conspicuous green patches on which the perithecia are usually found resemble those caused by the mycelium of *Helotium æruginosum*, indeed, it is not improbable that the latter originates the patches upon which the *Sphæria* locates itself. Hitherto the green patches and the perithecia have always been found associated. The perithecia are larger and more prominent than in *Lophiostoma bicuspidata*, and both are very distinct from *S. macrostoma*, Tode, in their fructification, although somewhat resembling small forms of it in external appearance. The fruit much resembles that of some species of *Massaria*. Length of sporidia (·0014 in.) ·035 m.m.

2540. Lophiostoma nucula. *Fr.* "Oak-bark Lophiostoma."

Sub-gregarious, black; perithecia minute, innate, superficial, ovate, even at first papillary, then pierced; sporidia uniseriate, oblong, obtuse, triseptate, constricted at the centre, hyaline.—*De Not. Schema, p.* 46. *Sphæria nucula, Fr. Sym. Myc. vol.* ii. *p.* 466. *Fries. exs. no.* 230. *Berk. Eng. Fl. vol.* v. *p.* 2, *p.* 266. *Fckl. exs. no.* 2168.

On oak bark.

The figure given in Trans. Bot. Ed. t. 6, f. 7 belongs to *Lophiostoma gregarium*, Fckl. exs. no. 929, and not to this species, to which Fuckel at first referred it. (See Sym. Myc. p. 158.)

2541. Lophiostoma fibritecta. *Berk.* "Bleached Larch Lophiostoma."

Scattered, minute, black, often slightly elongated, depressed; ostiolum sometimes quite obsolete, but frequently present, and varying from punctiform to linear; asci clavate, varying greatly in length, paraphyses slender; sporidia curved, subfusiform, yellow-brown, quinque-septate.—*De Not. Schema, p.* 46. *Cooke Trans. Bot. Ed. vol.* ix. *Sphæriafibritecta, Berk. in Hook. Journ.* 1853, *p.* 43. *B. & Br. Ann. Nat. Hist. no.* 777, *Berk. Outl. p.* 397.

On bleached larch planks. Dec. King's Cliffe.

Sporidia ·04 m.m. long.

"The perithecia are rather larger than those of the other fungi commonly present in similar situations. The contents are white. Nothing can be more variable than the ostiola of this species. Even in extreme cases it is entitled only to a place amongst the *Platystomæ* from affinity rather than from well defined characters."—*Berkeley.*

2542. Lophiostoma angustilabra. *B. & Br.* "Gorse Lophiostoma."

Perithecia half-immersed, rugulose, somewhat elongated; ostiolum compressed, narrow; asci clavate; sporidia biseriate, fusiform, curved, uniseptate, constricted at the septum, each articulation containing from two to three nuclei, and terminating in a hyaline point.—*Cooke Trans. Bot. Ed. t.* 6, *f.* 3. *Sphæria angustilabra, B. & Br. Ann. N. H. no.* 881, *t.* xi. *f.* 27.

On gorse. Leicestershire—Shere, Surrey.

Sporidia (·0015-·0016 in.) ·04-·043 m.m. long.

"Differing from *S. excipuliformis* in the structure of the spores, which are possibly at length multiseptate; but if so, they are at first composed of two very elongated cones opposed to each other at their bases, and strongly constricted at the commissure."—*B. & Br.*

2543. Lophiostoma sex-nucleata. *Cooke.* "Six-nucleate Lophiostoma."

Scattered; perithecia elongated, black, slightly rugose; at first immersed, then emergent; ostiolum compressed; sporidia biseriate, fusiform, hyaline, slightly curved, five-septate, constricted at the centre, and but little at the other septa, each articulation containing a single nucleus.—*Cooke Trans. Bot. Ed. vol.* ix. *t.* 6, *f.* 8.

On nettle stems. March. Shere, near Guildford.

Sporidia (·0014 in.) ·035 m.m. long.

This can hardly be considered as a form of *S. angustilabra*, since that species, even when the septa can be discerned, still remains quadri-nucleate. The length is slightly less, and the hyaline membrane absent. It appears to succeed *Sphæria coniformis* on old nettle stems, and has been overlooked from its casual resemblance to the remains of the dispersing perithecia of *S. coniformis*. (*Fig.* 392.)

2544. Lophiostoma excipuliforme. *Fr.* "Exciple-mouthed Lophiostoma."

Scattered; perithecia emergent, ovate, black, rugulose; lips of the ostiolum longer than the short neck; sporidia uniseriate, fusiform, curved, with about six septa; commissures not constricted.—*De Not. Schema p.* 45. *Cooke Trans. Bot. Ed. vol.* ix. *t.* 6, *f.* 10. *Sphæria excipuliformis, Fr. Obs. t.* 4, *f.* 5. *Fr. exs. no.* 88. *Fr. Syst. Myc. vol.* ii. *p.* 469. *Berk. Eng. Fl. vol.* v. *p.* 266. *B. & Br. Ann. N.H. no.* (880).

On bark, dead wood, and furze. King's Cliffe, &c. [Mid. Carolina.]

Sporidia (·0012 in.) ·03 m.m. long.

The Rev. M. J. Berkeley says that the typical form published by Fries in *Sclerom. Suecicæ* has sporidia of precisely the same shape, but twice as long, and that he finds them sometimes ·0028 in. long. "It is distinguished from the other wide-mouthed species by its short cylindric neck."

2545. Lophiostoma Jerdoni. *B. & Br.* "Jerdon's Lophiostoma."

Perithecia scattered or slightly crowded, sub-globose, with narrow linear ostiola; asci clavate; sporidia biseriate (·0012-·00125 in.) ·03 to ·033 m.m. long, strongly constricted in the centre, as also each of the two bi-tri-nucleate joints.—*Cooke Trans. Bot. Ed.* ix. *t.* 6, *f.* 5. *Sphæria Jerdoni, Berk. & Br. Ann. N. H. no.* 975, *t.* xvii. *f.* 28.

On *Rubus idæus* and on elm.

Sporidia (·0012-·00125 in.) ·03-·033 m.m. long.

2546. Lophiostoma caulium. *De Not.* "Herbaceous Lophiostoma."

Perithecia immersed, globoso-elliptic, black; ostiolum naked, elliptic or linear; asci clavate; sporidia crowded, or bisenate, fusiform, attenuated, straight or curved, 7-septate, with a greenish tint.—*Seriacei italici, no.* 70. *Micro. Ital.* viii. *cum icone. Cooke Trans. Bot. Edin. t.* 6, *f.* 6. *Lophiostoma herbarum, Fr. V.A.H.* 1818, *p.* 114. *Sphæria caulium, Fr. Sys. Myc. vol.* ii. *p.* 510. *Fries exs. no.* 465. *Desm. Ann. and Sc. Nat.* xv. *t.* 14, *f.* 2, *a. Berk. & Br. Ann. N.H. no.* 982. *Fckl. exs. no.* 927.

On dead stems of *Epilobium hirsutum*, &c.

Sporidia (·0015 in.) ·04 m.m. long.

2547. Lophiostoma arundinis. *De Not.* "Reed Lophiostoma."

Perithecia covered, sub-erumpent, globose, rugulose, black; ostiolum thick, naked, compressed, labiate; sporidia biseriate, yellowish, 3-5 septate, slightly curved, pointed at each extremity. —*Schema di Class. p.* 46. *Cooke Trans. Bot. Edin. t.* 6, *f.* 9. *Sphæria arundinis, Fr. Sys. Myc. vol.* ii. *p.* 510. *B. & Br. Ann. Nat. Hist. no.* 639, 27. *Kunze. exs. no.* 55. *Curr. Linn. Trans.* xxii. *p.* 330, *pl.* lix. *f.* 124. *Rabh. exs. no.* 647. *Berk. Outl. Fung. p.* 397. *Berk. exs. no.* 87. *Fckl. exs. no.* 926.

On reeds and grasses. [Low. Carolina.]

"The spores are at first uniseptate, and the contents of the two portions are then divided into two or three endochromes, in which respect there is an essential difference between this species and all forms of *Sphæria culmifraga*." —*Berk.*

"Sporidia fusoidea 4-6 locularia, sæpe curvula fuliginea."—*De Notaris.* (Pl. vi. fig. 9, with free sporidia.)

2548. Lophiostoma semilibera. *De Not.* "Half-free Lophiostoma."

Scattered; perithecia minute, ovate-elliptical, semi-immersed, black, shining; ostiolum compressed, eristate; asci clavate; sporidia fusiform, straight, or curved, acute at each extremity, quinque-septate.—*Schema di Class. p.* 46. *Cooke Trans. Bot. Edin. vol.* ix. *Sphæria semilibera, Desm. exs. no.* 1787. *Ann. Sc. Nat. ser.* iii. *vol.* vi. *p.* 78, 1846. *B. & Br. Ann. N.H. no.* 641. *Fckl. exs. no.* 1705.

On the culms of reeds and grasses.

Sporidia (·033-·03) m.m. long.

Found by Desmazieres on *Bromus sylvaticus*, and it occurs also on *Dactylis glomerata* and *Triticum sativum*. The form on reeds is proportionately larger than on the smaller grasses.

Gen. **356. SPHÆRIA,** Hall.

Perithecia black, carbonaceous, piereed at the apex, mostly papillate, superficial or erumpent, without any stroma; sporidia simple or septate, hyaline, or coloured, variable. (*Fig.* 393.)

Series **A.**	Perithecia free	*Superficiales.*
B.	Perithecia covered, then erumpent and naked	*Erumpentes.*
C.	Perithecia at first innate, then erumpent above	*Subtectæ.*

A. Superficiales.

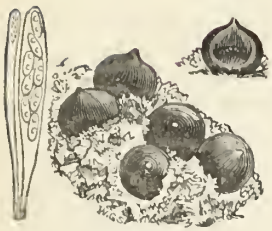


Fig. 393.

Simple. Perithecia bicorticate, seated on an effused villous subiculum, or superficially on the flattened matrix, free, at first veiled.—*Fr. S.M.* ii. *p.* 321.

a. Byssisedæ.

Perithecia smooth, seated on a tomentose subiculum.—*Fr. S.M.* ii. *p.* 322.

* Sporidia coloured, simple.

2549. Sphæria thelena. *Fr.* "Large nestling Sphæria."

Perithecia confluent, globose, thin, papillate, brown-black, emerging from a purplish evanescent subiculum; sporidia black-brown, opaque, elliptical or slightly curved.—*Fr. S.M.* ii. *p.* 441. *Fries. exs. no.* 49. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 8. *S. aquila, Eng. Fl.* v. *p.* 259.

On decayed wood. Appin.

Subiculum dense, interwoven, superficial, loosely adherent, indeterminate; perithecia large, even, smooth, wholly emerging from the subiculum, at length confluent, and the subiculum is totally obliterated. Sporidia sometimes with a large nucleus (·0009 in.) ·022 m.m.

2550. Sphæria aquila. *Fr.* "Brown nestling Sphæria."

Conidia.—Forming a thickened effused subiculum; flocci brown; conidia subglobose, minute.—*Alytosporium fuscum, Link. sp.* i. *p.* 23. *Sporotrichum fuscum, Lk. Obs.* i. *p.* 35. *Fckl. exs. no.* 139.

Ascophore.—Perithecia gregarious, globose, firm, papillate, brown black, emerging from a persistent brown, tomentose, subiculum; sporidia dark brown, almost opaque, almond-shaped or subcymbiform, or oblong.—*Cooke exs. no.* 270. *Fr. S.M.* ii. *p.* 442. *Berk. Ann. N.H. no.* 180. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 4. *Moug. exs. no.* 965. *Schm. exs. no.* 58. *Tode. f.* 70. *S. byssiseda, Eng. Fl.* v. *p.* 260. *Rosellinia aquila, Tul. Carp.* ii. *p.* 250, *t.* 33, *f.* 1-6. *Fckl. exs. no.* 963. *De Not. Sfer. Ital. t.* v. *f.* 18.

On rotten sticks. Common. [United States.]

Sporidia (·0006-·0008 in.) ·015-·02 m.m. (*Fig.* 393.)

2551. Sphæria Desmazierii. *B. & Br.* "Desmazieres' Sphæria."

Subiculum very widely effused, tomentose; perithecia large, nestling, globose, here and there confluent, somewhat scabrous; ostiola papillæform; asci elongated; sporidia elongated-cymbiform, 6-7 nucleate, brown.—*B. & Br. Ann. N.H. no.* 618, *t.* 9, *f.* 1. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 2.

On the ground in woods. Aug.—Oct.

Spreading widely over the ground, fallen leaves, &c., and covering them with a mouse-coloured tomentose subiculum which consists of somewhat branched anastomosing threads, tips often subdivided, forming little racemes, surmounted by oblong conidia. Perithecia large, half immersed in the subiculum, which in age acquires a darker hue, somewhat scabrous, dull pitchy black, or plumbaginous, globose, with a central papillæform ostiolum; asci elongated, clavate; inner membrane, furnished with an oblong process at the tip; sporidia large, cymbiform, elongated, subacuminate, at first hyaline, with two or three variously sized globules, at length dark brown, containing six or seven globose nuclei.—*B. & Br.* Sporidia (·0013 in.) ·03 m.m.

** Sporidia coloured, septate.

2552. Sphæria phæostroma. *Mont.* "Large-spored Ground Sphæria."

Conidia.—A[illegible] threads of the subiculum, oblong, bi-septate, [illegible]pical on the [illegible], dark-brown.—*Fckl. Sym. Myc. p.* 166.

Ascophore.—Perithecia gregarious, crowded, subovoid, black, rugulose, semi-immersed in a thick, blackish-brown subiculum; asci cylindrical; sporidia cylindrical, slightly curved, triseptate, colourless at each end, clear brown in the middle.—*Mont. Syll. p.* 226. *D. R. & M. Fl. Alg. t.* 26, *f.* 2. *B. & Br. Ann. N.H. no.* 605. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 12. *S. tristis, var.* β. *Eng. Fl.* v. *p.* 260. *Chætosphæria phæostroma, Fckl. Sym. Myc. p.* 166, *t.* 2, *f.* 40. *Rabh. F.E. no.* 51.

[Mid. Carolina.]

Sporidia (·0014-·0016)·035-·04 m.m.

2553. Sphæria racodium. *Fr.* "Brittle nestling Sphæria."

Perithecia subglobose, rugulose, hairy, black, papillary, emerging from a broad, black, tomentose subiculum; sporidia biseriate, pale brown. 7-septate.—*Fr. S.M.* ii. *p.* 449. *Fries. exs. no.* 310. *Eng. Fl.* v. *p.* 261. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 15. *Berk. exs. no.* 283. *Lasiosphæria racodium, Fckl. Sym. Myc. p.* 147. *Fckl. exs. no.* 951.

On decaying wood. Common. [Low. & Mid. Carolina.]

Scattered or densely gregarious, brittle, the base immersed in the matrix, subiculum sometimes present on one part of the wood, and wanting on another. Sporidia (·002-·0026 in.) ·05-·06 m.m.

*** Sporidia hyaline.

2554. Sphæria tristis. *Tode.* "Black nestling Sphæria."

Perithecia crowded, globose, punctato-rugulose, collapsed, mouthless, black, seated on a strigose subiculum; sporidia minute, oblong, curved, biseptate, or trinucleate.—*Tode. f.* 67. *Pers. Ic. & Des. t.* 12, *f.* 5, 6. *Fr. S.M.* ii. *p.* 444. *Fries. exs. no.* 386. *Eng. Fl.* v. *p.* 260. *Ann. N.H. no.* 618* 181. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 11 (?) *Cooke exs. no.* 269.

On dead sticks.

Resembling at first sight one of the larger *Helminthosporia*. Perithecia minute, collapsing.

2555. Sphæria biformis. *Pers.* "Two-formed Sphæria."

Perithecia subovate, slightly tuberculate, black, clothed with strigose hairs of the same colour; ostiola somewhat elongated.—*Pers. Syn. t.* 2, *f.* 14. *Ic. Pict. t.* 24, *f.* 4. *Fr. S.M.* ii. *p.* 448. *Eng. Fl.* v. *p.* 261.

On wood.

var. β. **terrestris.** Perithecia crowded, seated upon a crust-like, strigoso-villous subiculum. *Sow. t.* 373, *f.* 7. *Eng. Fl.* v. *p.* 261.

On the naked earth.

2556. Sphæria investans. *Cooke.* "Investing Sphæria."

Gregarious, or scattered, globose, papillate, brown-black, crumpent, throwing off the cuticle, seated upon, and at first covered by a dirty-brown woolly subiculum, at length the upper portion of the perithecia naked; sporidia broadly lanceolate, uniseptate, of two opposed cones, constricted at the septum, surrounded by a broad hyaline membrane, each cell with a large basal, and small apical nucleus, hyaline.

On rotten twigs. Shere. (Dr. Capron.)

The outline of the investing membrane of the sporidia is broadly lanceolate, and not constricted, length (·0008-·0009 in.)

b. Villosæ.

Perithecia persistently hairy.—*Fr. S.M.* ii. *p.* 322.

* Sporidia coloured.

2557. Sphæria ovina. *Pers.* "Woolly Sphæria."

Perithecia subglobose, clothed with dirty-white, mucedinous down, naked at the base; ostiolum papillate, at length black; sporidia biseriate or crowded, pale brown, long, flexuous.—*Pers. Syn. p.* 71. *Fr. S.M.* ii. *p.* 446. *Fries. exs. no.* 149. *Eng. Fl.* v. *p.* 260. *Curr. Linn. Trans.* xxii. *p.* 316. *S. nivea, Sow. t.* 219. *Leptospora ovina, Fckl. Sym. Myc. p.* 143. *Fckl. exs. no.* 788.

On decayed wood. [Mid. Carolina.]

2558. Sphæria brassicæ. *Klotsch.* "Cabbage Sphæria."

Perithecia conical, their bases innate, clothed with dirty-white arachnoid down; ostiola naked, simple, jet-black; sporidia colourless, then pale brown, ultimately dark opaque brown, elliptical, with pointed ends or lozenge-shaped.—*Eng. Fl.* v. *p.* 261. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 23.

On dead cabbage stalks.

Sporidia (·0014-·002 in.) ·03-·05 m.m. long. Perithecia large, hairy at the bottom, hairs white or brown, sporidia sometimes with two large nuclei, sometimes with a dark line not extending quite across the sporidium.—*F. C.*

2559. Sphæria hirsuta. *Fr.* "Hairy Black Sphæria."

Conidia.—Gregarious, stem rigid, persistent, black; head subrotund, at length compact, greyish.—*Stilbum rigidum, Pers. Syn. p.* 680. *Fckl. exs. no.* 177.

Ascophore.—Perithecia subglobose, and ovate, tuberculate, black, covered with scattered hairs of the same colour; ostiolum obsolete; sporidia biseriate or crowded, pale brown, long, flexuous.—*Fr. S.M.* ii. *p.* 449. *Eng. Fl.* v. *p.* 262. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 18. *Lasiosphæria hirsuta, Fckl. Sym. Myc. p.* 147, *t.* 3, *f.* 32. *Fckl. exs. no.* 950.

var. β. **acinosa.** Perithecia globose and subdepressed, black-brown.—*Batsch. f.* 179. *Sow. t.* 386, *f.* 3?

On decayed wood.

Sporidia (·002-·0026 in.) ·05-·06 m.m.

2560. Sphæria hispida. *Tode.* "Hispid Sphæria."

Spermogonia.—Perithecia irregularly clavate, cylindrical, or dilated at the base, greenish yellow or pallid; spermatia minute, ovate, hyaline.—*Sphæronema flavo-viride, Fckl. exs. no.* 774.

Ascophore.—Black; perithecia ovato-conic, confluent with the ostiola, clothed with short, scattered hairs; sporidia cylindrical, vermiculate, 7-8 septate, obtuse, umber; cells nucleate.—*Tode. f.* 84. *Fr. S.M.* ii. *p.* 450. *Eng. Fl.* v. *p.* 262. *Sphæria terrestris, Fckl. exs. no.* 949, 2039. *Sph. lignaria, Grev. t.* 82? *Lasiosphæria hispida, Fckl. Sym. Myc. p.* 147, *t.* 3, *f.* 31.

On decayed wood. Appin.

If the specimen of *S. ligniaria* examined by Mr. Currey (Linn. Trans. xxii. t. 58, f. 66) belongs to this species the fruit is very different, as follows—"sporidia uniseriate, at first pale brown, then dark brown, elliptico-acuminate ·0005 in. long."

2561. Sphæria capillifera. *Curr.* "Stiff Hairy Sphæria."

Perithecia globose, clothed with very short, rather stiff black hair, seated on a pale subiculum; ostiola mamillate; sporidia uniseriate, rather dark brown, broadly elliptical, 1-2 nucleate.—*Curr. Linn. Trans.* xxii. *p.* 317. *t.* 57, *f.* 26.

On *Corticium* and subjacent wood.

Sporidia (·0003-·0004 in.) ·0076-·01 m.m.

2562. Sphæria scatigena. *B. & Br.* "Satiny Sphæria."

Perithecia free, ovate, finely hispid, hairs short, rigid; ostiola papillæform, truncate at the apex; sporidia subglobose.—*B. & Br. Ann. N.H. no.* 972, *t.* 17, *f.* 25.

On horse dung. King's Cliffe.

Perithecia free, ovate, rough, with very short rigid hairs; ostiolum papillæform, truncate, asci cylindrical; sporidia uniseriate, broadly elliptic, subglobose, at first surrounded with gelatine (·0008 in.) ·02 m.m. long, flattened, so that a lateral view gives a narrow elliptic outline.—*B. & Br.*

* Sporidia hyaline, simple.

2563. Sphæria cæsia. *Carm.* "Grey woolly Sphæria."

Perithecia white, very hairy; sporidia uniseriate, colourless, elliptical, or subpyriform.—*Curr. Linn. Trans.* xxii. *p.* 316, *t.* 57, *f.* 17.

On wood.

Sporidia (·0002 in.) ·005 m.m. long.

2564. Sphæria canescens. *Pers.* "Hoary Sphæria."

Perithecia aggregate, globose and ovate, hairy, papillate, hoary; sporidia colourless, straight, or curved, subacuminate.—*Pers. Syn.* ii. *p.* 448. *Fr. S.M.* ii. *p.* 261. *Fries. exs. no.* 50. *Eng. Fl.* v. *p.* 261. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 14. *Berk. exs. no.* 301.

On decayed wood. [Low. Carolina.]

Perithecia forming a dense stratum of a cinereous brownish or greenish hue, very hairy, brittle. Sporidia (·0011-·0014 in.) ·025-·035 m.m. long.

2565. Sphæria strigosa. *A. & S.* "Bristly Sphæria."

Perithecia aggregate, globose and ovate, papillary, beset all round with long, rigid, hoary hairs; sporidia elongated, somewhat curved, pale tawny, simple.—*Fr. S.M.* ii. *p.* 448. *A. & S. t.* 5, *f.* 7. *Eng. Fl.* v. *p.* 261. *Leptospora strigosa, Fckl. Sym. Myc. p.* 144. *Sph. mucida, Fckl. exs. no.* 948.

On decayed wood. [Low. & Mid. Carolina.]

Distinguished from *S. canescens* by its closer habit, and tough, not brittle substance. The hairs of both, though giving the perithecia a hoary appearance, are not always white, but frequently of a brownish or yellowish hue. —*M.J.B.* Mr. Currey does not think the two species distinguishable.

2566. Sphæria exilis. *A. & S.* "Hairy Pine Sphæria."

Black, very minute; perithecia globose, then depressed, at length collapsed, concave, astomous, clothed with short hairs; sporidia cylindrical, curved, simple, hyaline.—*A. & S. t.* 9, *f.* 4. *B. & Br. Ann. N.H. no.* 606. *Fckl. exs. no.* 2023. *Nitschkia exilis, Fckl. Sym. Myc. p.* 165.

On pine twigs. Wraxall. [Low. Carolina.]

2567. Sphæria superficialis. *Curr.* "Currey's Hairy Sphæria."

Perithecia hairy, subglobose, very small, seated on a hairy subiculum; sporidia uniseriate, overlapping, elliptical, or subturbinate, rarely slightly curved, colourless.—*Curr. Linn. Trans.* xxii. *p.* 317, *t.* 57, *f.* 25.

On fir wood.

Sporidia (·0003-·0004 in.) ·0076-·01 m.m. binucleate.

2568. Sphæria calva. *Tode.* "Tode's Hairy Sphæria."

Perithecia scattered, depresso-globose, papillary, even, black,

beset below with short hispid hairs, above smooth and shining. —*Tode f.* 83. *Fr. S.M.* ii. *p.* 451. *Eng. Fl.* v. *p.* 262.

On decayed wood and branches.

*** Sporidia hyaline, septate or nucleate.

2569. Sphæria mutabilis. *Pers.* "Changeable Sphæria."

Perithecia subglobose, covered with a yellow or greenish, then ferruginous down; ostiola subpapillæform, blackish; sporidia biseriate, colourless, curved, acuminate; endochrome 4 partite. —*Pers. Ic. & Desc. t.* 7, *f.* 6. *Fr. S.M.* ii. *p.* 447. *Sturm. t.* 64. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 20.

On hard wood, oak, &c. [Mid. Carolina.]

Sporidia (·0008 in.) ·02 m.m. long.

2570. Sphæria scabra. *Curr.* "Rough Furze Sphæria."

Perithecia very hairy, seated on a dense subiculum, erumpent; sporidia biseriate, fusiform, constricted in the middle, colourless, with many nuclei.—*Curr. Linn. Trans.* xxii. *p.* 315, *t.* 57, *f.* 13.

On furze. Oct. Weybridge.

Sporidia (·0012-·0014 in.) ·03-·035 m.m. long.

2571. Sphæria callimorpha. *Mont.* "Hairy Bramble Sphæria."

Perithecia minute, gregarious, globoso-depressed, ovoid, even, black, shining, papillate, surrounded by erect, black hairs; sporidia cymbiform, triseptate.—*Mont. Syll. p.* 227. *B. & Br. Ann. N.H. no.* 872. *Mont. Ann. des Sc. Nat. ser.* ii. *vol.* i. *p.* 306, *t.* 13, *f.* 5.

On bramble. Leicestershire.

It is doubtful whether this is really distinct from *S. ruborum*, Lib. M. Westendorp unites them, but we have never examined an authentic specimen of Montagne's.

2572. Sphæria macrotricha. *B. & Br.* "Long-haired Sphæria."

Subiculum creeping; peritheeia ovate, clothed below with long hairs, attenuated above and naked, collapsing with the papillæform ostiola; asci clavate; sporidia fusiform, uniseptate, 6-nucleate.—*B. & Br. Ann. N.H. no.* 619, *t.* 9, *f.* 2.

On dead leaves of *Carex paniculata* and Beech mast.

Brown or nearly black, subiculum effused, consisting of interwoven, creeping hairs. Perithecia crowded, ovate, clothed with long hairs, attenuated, and more or less denuded above, and when dry collapsing with their papillæform ostiolum. Sporidia hiseriate, fusiform, consisting of two opposed cones constricted at the juncture, and sometimes above the first nucleus, each division containing one or more globules.—*B. & Br.*

2573. Sphæria pilosa. *Pers.* "Velvety Sphæria."

Black; perithecia minute, roundish-ovate, nearly even, beset with short hairs; ostiola simple; sporidia colourless, elliptical, uniseptate, or with the endochrome bipartite.—*Pers. Ic. & Desc. t.* 10, *f.* 9, 10. *Fr. S.M.* ii. *p.* 450. *Eng. Fl.* v. *p.* 262. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 21. *B. & Br. Ann. N.H. no.* 1096*. *Fckl. exs. no.* 946 *?*

On decayed wood. Common. [Low. Carolina.]

A small species, like *S. pulvis-pyrius*, but decidedly hairy. Sporidia (·0003-·0004 in.) ·0076-·01 m.m. "We have observed oblong conidia, rather irregular in outline, terminating the hairs. The asci in the same specimens, besides the eight linear, oblong, somewhat sigmoid sporidia had at the tip a globose, smooth, or slightly granulated body (·0003 in.) 0076 m.m. in diameter, the nature of which we were unable to determine."—*B. & Br.*

2574. Sphæria sexdecemspora. *Cooke.* "Sixteen-spored Sphæria."

Scattered; perithecia small, ovate, beset with rigid, erect hairs (at first covered, then bursting through the cuticle), black; ostiola prominent; asci elliptical; sporidia sixteen, crowded, broadly lanceolate, 3-5 septate, with transverse divisions, hyaline.

On twigs. Shere. (Dr. Capron.)

This pretty little *Sphæria* is very distinct from its allies. It is included doubtfully with the *Villosæ*; there is no subiculum, and only occasionally the perithecia are wholly exposed. Sometimes there are more than five septa in the sporidia, which are very variable in size.

c. Denudatæ.

Subiculum none; perithecia smooth, rounded at the base, nearly free; ostiolum persistent; adnate, superficial.—*Fr. S.M.* ii. *p.* 322.

* Sporidia hyaline.

2575. Sphæria bombarda. *Batsch.* "Clustered naked Sphæria."

Fasiculate, black-brown; perithecia elongated, soft, ventricose; ostiolum papillæform; sporidia crowded, colourless, inter-

twined, variable, frequently divided in the middle.—*Batsch. f.* 181. *Hedw. Crypt. t.* 38. *Fr. S.M.* ii. *p.* 456. *Fries. exs. no.* 266. *Eng. Fl.* v. *p.* 264. *Berk. Outl. t.* 24, *f.* 5. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 29. *Berk. exs. no.* 268. *S. reptans, Sow. t.* 395, *f.* 1. *Bombardia fasciculata, Fckl. Sym. Myc. p.* 164. *Fckl. exs. no.* 940.

On rotten stumps.

Sporidia (·0016-·0020 in.) ·035-·05 m.m.

"Apparently varying much in the length of the ostiolum. I have seen once or twice a bead-like appearance in the sporidia, arising from the breaking up of the endochrome into divisions, I suspect it may sometimes be multiseptate."—*F.C.*

2576. Sphæria spermoides. *Hoffm.* "Crowded naked Sphæria."

Densely crowded, black; perithecia rigid, globose, minutely rugulose; ostiola obsolutely papillæform; sporidia biseriate, colourless, curved; endochrome sometimes bipartite.—*Hoffm. V. C. t.* 3, *f.* 3. *Moug. exs. no.* 486. *Fr. S.M.* ii. *p.* 457. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 36. *Eng. Fl.* v. *p.* 265. *Fries exs. no.* 237. *Grev. t.* 6. *Light t.* 31. *S. bombardica, Bolt. t.* 122. *Sow. t.* 372, *f.* 4. *Leptospora spermoides, Fckl. Sym. Myc. p.* 143. *Fckl. exs. no.* 939. *Leptospora pseudo-spermoides, Awd. Fckl. exs. no.* 2175.

On rotten stumps. Common. [Mid. Carolina.]

Spreading for several inches in a continuous crust, rarely scattered. Sporidia (·0008 in.) ·02 m.m.

2577. Sphæria moriformis. *Tode.* "Mulberry Sphæria."

Crowded, black; perithecia obovate, corrugato-tuberculate; ostiolum simple; sporidia crowded, uniseptate, colourless, linear, slightly curved, granular.—*Tode f.* 90. *Moug. exs. no.* 382. *Fr. S.M.* ii. *p.* 458. *Fries exs. no.* 125. *Eng. Fl.* v. *p.* 265. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 30. *S. claviformis, Sow. t.* 337. *S. rugosa, Grev. t.* 39. *S. rubiformis, Sow. t.* 373, *f.* 2. *Bertia moriformis, Fckl. Sym. Myc. p.* 164. *Fckl. exs. no.* 999.

On wood, branches, &c. [United States.]

Very variable in form.

2578. Sphæria innumera. *B. & Br.* "Numerous Sphæria."

Conidia.—Thinly effused, at first bright green, then olivaceous; conidia very copious, globose, dull greenish.—*Sporotrichum virescens, Link. Sp.* 1, *p.* 16. *Dematium virescens, Pers. M. E. t.* 1, *p.* 14. *Fr. S.M.* iii. *p.* 363.

Ascophore.—Perithecia produced amongst the conidiophorous threads, numerous, black, shining, globose, scarcely papillate; asci linear-clavate; sporidia straight, oblong-lanceolate, pellucid, with two or three nucleoli, at length biseptate.—*B. & Br. Outl. p.* 395. *Chætosphæria innumera, Tul. Carp.* ii. *p.* 253.

On wood.

Sporidia ·013 m.m. long, ·004 m.m. thick.

2579. Sphæria botryosa. *Fr.* "Granular Sphæria."

Cæspitose or conglomerated, rounded; perithecia globose, connate, rugose, opaque, black, depressed at the apex; asci clavate, containing an indefinite number of very minute granules.—*Fr. S.M.* ii. *p.* 342. *Fries. exs. no.* 112. *Curr. Linn. Trans.* xxii. *t.* 46, *f.* 46. *Fckl. exs. no.* 959. *Hypoxylon botrys, Nke. Pyr. Germ. p.* 34. *Fckl. Sym. Myc. p.* 234.

"Granules colourless, about (·0001 in.) ·0025 m.m., endowed with Brownian motion. I should have doubted these granules being true sporidia, but I find this fruit coinciding exactly with that of authentic specimens from the *Sclerom ycetes sueciæ*. Fries considers the plant a *Sphæria*, with confluent perithecia, but not an *Hypoxylon*."—*F.C.* Nitschke calls the sporidia ovate, obtuse, unequilateral.

2580. Sphæria pomiformis. *Pers.* "Apple-shaped Sphæria."

Rather small, black; perithecia apple-shaped, even, with an impressed ring round the papillæform ostiolum; sporidia ovate, or ovate-oblong, obtuse, bilocular, slightly constricted, hyaline, or pale brown.—*Pers. Syn. p.* 65. *Ic. Pict. t.* 5, *f.* 4, 5. *Moug. exs. no.* 482. *Fr. S.M.* ii. *p.* 455. *Fries. exs. no.* 236. *Eng. Fl.* v. *p.* 264. *Fckl. exs. no.* 938. *S. corona, Sow. t.* 393, *f.* 7. *Melanomma pomiformis, Fckl. Sym. Myc. p.* 159.

On dead wood. [Low. Carolina.]

Perithecia globose, rather thin, but slightly rigid, and in consequence collapsed only at the apex.

2581. Sphæria rhytidodes. *B. & Br.* "Sulcate Sphæria."

Gregarious, black; perithecia seated on a spot-like mycelium, subglobose, rugoso-sulcate; ostiola papillæform; asci elongated; sporidia biseriate 3-6 septate, torulose.—*B. & Br. Ann. N.H. no.* 873, *t.* 10, *f.* 21.

On ash pollards. Jan. Batheaston.

Mycelium black, forming dark stains, on which are seated subglobose, laterally sulcate perithecia, with a papillæform ostiolum. Asci elongato-clavate. Sporidia biseriate (·001-·0013 in.) ·025-·03 m.m. long, cymbiform.

2582. Sphæria perexigua. *Curr.* "Rough little Sphæria."

Crowded, black; peritheeia sub-globose, rugose; sporidia biseriate, colourless, or greenish, subelliptical, slightly curved, endochrome bipartite.—*Berk. Outl. p.* 396. *S. pustula, Curr. Linn. Trans.* xxii. *p.* 317, *t.* 57, *f.* 31.

On wood. Bungay.

Very like *S. pulvis-pyrius*, except in the sporidia, which are (·0008-·001 in.) ·02-·025 m.m.

2583. Sphæria ordinata. *Fr.* "Long-line Sphæria."

Crowded in an elongated series, red-brown; peritheeia minute, soft, subfibrillose at the base; asci elavate; sporidia biseriate, curved, fusiform, multiseptate.—*Fr. S.M.* ii. *p.* 454. *B. & Br. Ann. N.H. no.* 973, *t.* 17, *f.* 26.

On decorticated fallen oak branches. Dec.

Perithecia scattered or aggregated, arranged in lines, ovate, with a papillary orifice, rusty brown, becoming black, covered at first with a tomentose veil, sometimes regularly attenuated, resting on a brownish friable mycelium. Asci clavate. Sporidia biseriate, curved, fusiform, hyaline, multiseptate (·0015 in.) ·035 m.m. long, sometimes shorter.—*B. & Br.*

2584. Sphæria ruborum. *Lib.* "Bramble Sphæria."

Peritheeia globose, or subglobose, with a mamillate ostiolum, covered and nestling amongst stiff, dark, scattered hairs; sporidia biseriate, colourless, subcymbiform, or narrowly almond-shaped, nucleate, or pseudo-septate.—*Lib. exs. no.* 340. *Cooke. Seem. Journ.* 1866. *Cooke exs. no.* 385. *Sph. rubicola, Curr. Linn. Trans.* xxii. *t.* 57, *f.* 48.

On bramble. Oct.

Sporidia (·0006·0007 in.) ·015-·0177 m.m. with 2 or 4 nuclei, or sometimes with the endochrome divided into two parts. M. Westendorp refers *S. ruborum*, Lib. to *S. callimorpha*, Mont.

2585. Sphæria paucipilis. *Cooke.* "Few-haired Sphæria."

Peritheeia gregarious, small, black, globose, with a few scattered hairs, which are also scattered over the matrix; ostiolum slightly papillate; asci narrowly clavate; sporidia biseriate, lanceolate, 3-5 septate, with a large globose nucleus in each cell, except the terminal ones, hyaline.

On rotten sticks. Wootton Wood. (Dr. Capron.)

The habit is very similar to that of *Sphæria ruborum*, overrunning irrespectively the naked wood, and the fragments of bark still adherent thereto. Asci ·0034 in. long. Sporidia (·0006-·0008 in.) ·015-·02 m.m. long.

2586. Sphæria collabens. *Curr.* "Collapsing Sphæria."

Perithecia subglobose, with an impressed ostiolum, which is often furrowed or rimose; sporidia biseriate, fusiform, swollen, or constricted in the middle, with several nuclei, colourless.—*Curr. Linn. Trans.* xxii. *p.* 320, *t.* 58, *f.* 51.

On bark and wood.

Sporidia (·0014-·0016 in.) ·03.-04 m.m. The sporidia and perithecia agree nearly with *S. macrotricha*, but the perithecia have no hairs, the habitat is also different. The sporidia resemble also those of *S. scabra*, but, besides being smooth, the perithecia are four times the size of those of *S. scabra*.—*F.C.*

var. **Curreyi.** *Blox.* Contents of perithecia rose-red; sporidia rarely exceeding ·0010 in. in length.—*Sphæria Curreyi*, *Blox. Curr. Linn. Trans.* xxii. *p.* 320. *Berk. Outl. p.* 396.

There does not appear to be sufficient reason to regard this form as a distinct species.

2587. Sphæria pulviscula. *Curr.* "Powdery Sphæria."

Perithecia very small, black, rather shining, conical or subglobose, crowded or scattered; ostiola minute, mamillate; sporidia curved, or cymbiform, colourless, triseptate.—*Curr. Linn. Trans.* xxii. *p.* 320, *t.* 58, *f.* 52.

On wood.

Sporidia biseriate, curved or cymbiform, colourless or greenish, when perfect with three septa, or at least with the endochrome divided into four portions, giving an appearance of three septa, sometimes the endochrome is only once divided, and in a young state the sporidia are continuous. Length variable (·0008-·0012 in.) ·02-·03 m.m.—*F.C.*

* Sporidia coloured.

2588. Sphæria confluens. *Tode.* "Confluent Sphæria."

Perithecia subglobose, rugulose, seriato-confluent, black, depressed around the ostiola.—*Tode t.* 10, *f.* 87. *B. & Br. Ann. N. H. no.* 597. *Fr. S.M.* ii. *p.* 342. *Fckl. exs. no.* 2177.

On decayed wood, as oak, willow, &c. Bristol.

Fuckel states that the sporidia are oblong, nearly straight, brown; and refers it to *Hypoxylon udum*.

2589. Sphæria mammæformis. *Pers.* "Mamillate Sphæria."

Large, black; perithecia thin, globose, even; ostiolum papillæform; sporidia dark, clear brown, subcymbiform, variable in

size.—*Pers. Syn. p.* 64. *Ic. Pict. t.* 5, *f.* 6, 7. *Moug. exs. no.* 380. *Fr. S.M.* ii. *p.* 455. *Fries exs. no.* 387. *Eng. Fl.* v. *p.* 264. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 37. *Rosellinia mammæformis, Fckl. Sym. Myc. p.* 149. *Hypoxylon globulare. Bull. t.* 444, *f.* 2. *Fckl. exs. no.* 1060.

On decayed sticks, &c. [Low. & Mid. Carolina.]

Much larger than *S. pomiformis*, and though sometimes slightly depressed, not collapsing; sporidia (·0008-·0016 in.) ·02-·035 m.m.

2590. Sphæria obducens. *Fr.* "Naked Rail Sphæria."

Crowded, small, black; perithecia ovato-rotund, unequal, rigid; ostiola subpapillæform; sporidia crowded, yellowish-brown, multipartite, subelliptical.—*Fries. exs. no.* 119. *Berk. exs. no.* 177. *Mag. Zool. & Bot. no.* 100. *Fr. S.M.* ii. *p.* 456. *Tul. Carp.* ii. *p.* 245, *t.* 28, *f.* 4-13. *Fckl. exs. no.* 2024. *Cucurbitaria miskibutris, De Not. Act. Tur.* (1853), *p.* 126. *S. plateata, Curr. Linn. Trans.* xxii. *t.* 57, *f.* 35. *Trichospora obducens, Fckl. Sym. Myc. p.* 161.

On pales. Apethorpe.

Very like *S. pulvis pyrius*, except in the sporidia, which are (·0008-·0010 in.) ·02-·025 m.m.

2591. Sphæria pulvis-pyrius. *Pers.* "Gunpowder Sphæria."

Crowded, black; perithecia ovato-globose, rugose, sulcate in the middle; sporidia straight, or slightly curved, triseptate, slightly constricted, pale brown.—*Pers. Syn. p.* 86. *Fr. S.M.* ii. *p.* 458. *Fries exs. no.* 120. *Grev. t.* 152. *Cooke. exs. no.* 379. *Eng. Fl.* v. *p.* 265. *Moug. exs. no.* 381. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 32. *Fckl. exs. no.* 937. *(Fr. El.* ii. *p.* 82. *Eng. Fl.* v. 253, including *S. dioica, Moug. exs.) Melanomma pulvis-pyrius, Fckl. Sym. Myc. p.* 160.

On old wood, bark, &c. Common. [Low. & Mid. Carolina.]

Sometimes crowded, at others scattered and naked, rarely subcuticular. Distinguished without difficulty from *S. moriformis* by its much smaller size, less tuberculate surface, and subrimose ostiolum. Sporidia (·0005 in.) ·0127 m.m.

2592. Sphæria epochnii. *B. & Br.* "Olive-patch Sphæria."

Conidia.—Flocci effused, very delicate; conidia pellucid, dark-green, elongated, triseptate, incrassated at the apex.—*Sporidesmium fungorum, Berk. Outl. p.* 327. *Sporidesmium atrum,*

Grev. t. 194. *Epochnium fungorum, Fr. S.M.* iii. *p.* 449. *Eng. Fl.* v. *p.* 352.

Ascophore.—Perithecia at first conical, then subglobose, collapsed, crowded, olive-black, granulated; asci clavate; sporidia uniseriate, fusiform, constricted in the middle, at length triseptate, pale-brown.—*B. & Br. Ann. N.H.* 1866, *no.* 1177, *t.* 5, *f.* 36.

On *Corticia*, &c. March.

The *Epochnium* forms a thin stratum, which overruns various species of *Corticium*. The conidia are at first uniseptate. Perithecia at first pale bottle-green, crowded in the centre of the *Epochnium*, then black-green, granulated, sometimes depressed at the summit, with a minute pore. Asci clavate, containing a single row of triseptate fusiform. Sporidia (·001-·0011 in.) ·025-·03 m.m. long, strongly constricted in the centre, at length pale brown. The sporidia are at first uniseptate, with two nuclei in each division. —*B. & Br.*

*** Sporidia ovoid, simple, dark-coloured, sometimes caudate =*Sordaria, De Not.*

2593. Sphæria sporormia. *Cooke.* "Four-jointed dung Sphæria."

At first covered, then emergent, scattered, punctiform; perithecia ovoid, collapsing, shining, black; sporidia biseriate, dark opaque, rich brown, consisting of four joints, which frequently separate when the sporidia escape from the ascus.—*Sphæria stercoris, Fr. El.* ii. *p.* 104. *S. stercoraria, Fr. S.M.* ii. *p.* 455. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 40. *Fckl. exs. no.* 903. *Sporormia intermedia, Awd. in. Hedw.* 1868, *p.* 67 (not *Hypocopra stercoris, Fckl.*)

On dung. Shere. (Dr. Capron.)

Sporidia (·0018 in.) ·04 m.m. long. This can scarcely be regarded as belonging to the present section of simple-spored species.

2594. Sphæria coprophila. *Fr.* "Cow-dung Sphæria."

Effused; perithecia subglobose, connate, or scattered, covered with a thin, evanescent, whitish tomentum, at length naked, black; papillæ globose, black; asci clavate; sporidia ellipsoid, opaque, with a hyaline appendage, twice as long as the sporidia.—*Fr. S.M.* ii. *p.* 342. *B. & Br. Ann. N.H. no.* 596. *Hypoxylon coprophilum, Fr. S.V.S. p.* 384. *Fckl. exs. no.* 1057. *Sph. incana, Steph. Ann. N.H. ser.* i. *vol.* iv. *p.* 252. *Sordaria coprophila, De*

Not. Sfer. Ital. no. 20. *Fckl. Sym. Myc. p.* 244. *Rabh. exs. no.* 257. *Ces. Hedw. t.* xiv. *B. f.* 2-5.

On cow dung, in dense patches. Bristol, &c.
[United States.]

The above description of the fruit does not correspond with that of the Rev. M. J. Berkeley, who states that the sporidia are filiform, flexuous, containing a row of nuclei. This applies possibly to the immature sporidia only.

2595. Sphæria stercoraria. *Sow.* "Naked Dung Sphæria."

Black, shining; peritheeia globose, rigid, even; ostiolum papillæform; sporidia uniseriate, brown, eventually quite opaque, elliptical or almond-shaped.—*Sow. t.* 357, *f.* 1. *Fr. S.M.* ii. *p.* 455. *Eng. Fl.* v. *p.* 264. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 38. *Rabh. F.E. no.* 830. *Hypocopra stercoraria, Fckl. Sym. Myc. p.* 241.

On dung.

Rather large, firm, thick, not collapsing; perithecia are immersed in a decided stroma even when solitary. Sporidia (·0012 in.) ·03 m.m.

2596. Sphæria fimicola. *Rob.* "Asses' Dung Sphæria."

Peritheeia solitary, or few together; ostiola penicellate; sporidia elliptic, brown, with a large oil globule, green when young. —*Desm. exs. no.* 2061. *B. & Br. Ann. N.H. no.* 1097. *S. stercoraria, var. Curr. Linn. Trans.* xxii. *t.* 57, *f.* 39.

On asses' dung. Rhyl.

Delicate, linear, stylospores occur at the mouth of the peritheeia (·0007 in.) ·017 m.m. long. Sporidia (·0006-·0008 in.) ·015-·02 m.m. long (·0004 in.) ·01 m.m. broad. "Ostiola formed of a number of processes arranged in a penicellate manner, each consisting of a single row of irregularly shaped cells, the upper cell being pointed. Sporidia mostly uniseriate, greenish at first, then darker, probably eventually black, elliptical, ·0010 in. long."—*F.C.*

2597. Sphæria papaverea. *B. & Br.* "Poppy-head Sphæria."

Crowded; peritheeia globose, areolate and covered with a white veil, except the ostiola; ostiola large, plane, orbicular, radiato-sulcate; mouth round; sporidia elliptic, subnavicular, brown.—*B. & Br. Ann. N.H. no.* 612, *t.* 7, *f.* 14.

On rotten stumps. Mareh. Batheaston.

Widely effused, crowded, springing from a brown mycelium; peritheeia globose, black, finely areolated, covered, with the exception of the orbicular multisulcate ostiolum, with a white filmy veil; asci linear; sporidia elliptic, navicular, brown. The ostiolum resembles the stigma of a poppy, being separated by an abrupt line from the peritheeium; the peritheeia, though crowded, do not form a confluent mass, but are distinct.—*B. & Br.*

2598. Sphæria rotula. *Cooke.* "Wheel-like Sphæria."

Gregarious or scattered; perithecia globose, dark-brown, slightly woolly or smooth, opaque; ostiola cylindrical, prominent, radiato-sulcate, black; sporidia broadly ovate, slightly acuminate, dark-brown, simple, opaque.—*Cooke exs. no.* 268.

On the ground. Near Shere, Surrey.

Scattered, or in groups on ground containing minute fragments of decaying wood, in company with a hispid Sphæria. Perithecia small, globose, dark-brown, with a broad, prominent, cylindrical ostiolum, which is black and radiato-sulcate, somewhat after the manner of *S. papaverea*, but the perithecia are not in the least areolate, and the prominent ostiola are fluted down to the perithecium. The sporidia are longer and three times as broad as those of *S. papaverea*.

2599. Sphæria sordaria. *Fr.* "Rough naked Sphæria."

Sub-emergent, gregarious, black; perithecia globose, soft, collapsing, rugulose, confluent with the obsolete ostiolum; sporidia uniseriate, dark-brown, elliptical.—*Fr. S.M.* ii. *p.* 458. *Fries. exs. no.* 270. *Eng. Fl.* v. *p.* 265. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 43.

On moist pine wood. Appin.

Gregarious, minute, often disposed in rows. To the naked eye presenting little more than a black scurfy stain. Sporidia (·0006-·0007 in.) ·015-·0177 m.m.

2600. Sphæria pulveracea. *Ehr.* "Dust-like Sphæria."

Pycnidia.—Crowded, black, shining, minute, ovato-globose, even, slightly mamillate; stylospores ovate, or ovate-oblong, simple, brown.—*Sphæria myriocarpa, Fr. S.M.* ii. *p.* 459. *Fr. exs. no.* 313. *Eng. Fl.* v. *p.* 266. *Grev. t.* 152, *f.* 1. *Cooke exs. no.* 373.

Ascophore.—Crowded, small, black; perithecia subovate, rugulose, rigid; ostiolum distinct, piereed; sporidia uniseriate, dark-brown, elliptical, subglobose, or subturbinate.—*Fckl. exs. no.* 936. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 42. *Pers. Sym. p.* 83. *Fr. S.M.* ii. *p.* 459. *Fries. exs. no.* 121. *Eng. Fl.* v. *p.* 265. *Moug. exs. no.* 773. *S. millegrana, Schweinitz. Rosellinia pulveracea, Fckl. Sym. Myc. p.* 149.

On dry wood. [United States.]

Smaller than *S. pulvis pyrius*, surface unequal but not tuberculate, easily distinguished by the ostiolum. Perithecia rigid, rather shining, crustaceo-aggregate.—*Fries.* Sporidia (·0003-·0004 in.) ·0075-·01 m.m.

2601. Sphæria moroides. *Curr.* "Blackberry Sphæria."

Perithecia rugose, small; sporidia biseriate, greenish-brown, then brown, subhyaline, elliptical.—*Curr. Linn. Trans.* xxii. *p.* 318, *t.* 57, *f.* 34.

On wood.

Like very small specimens of *S. moriformis*, but differing altogether in the fruit.

2602. Sphæria vesticola. *B. & Br.* "Garment Sphæria."

Perithecia gregarious, ovate, oblique, attenuated above, somewhat clothed below; asci linear; sporidia lemon-shaped, black. —*Ann. N.H. no.* 874.

On the lining of an old gown. Dec. Batheaston.

Perithecia gregarious, olive-black, ovate, attenuated above, oblique, rough below with a few obscure flocci or furfuraceous prominences; asci linear; sporidia at first concatenated, then free, lemon-shaped (·0007 in.) ·0177 m.m. long, germinating at either extremity. The asci are soon absorbed.—*B. & Br.*

2603. Sphæria caudata. *Curr.* "Tail-spored Sphæria."

Perithecia small, scattered, or few together, conical or subglobose, with a conical ostiolum; sporidia biseriate, with a pointed, subelliptical brown head, and an elongated colourless tail.—*Curr. Linn. Trans.* xxii. *p.* 320, *t.* 58, *f.* 50.

On rotten wood. Twycross.

This species is very peculiar in the form of its sporidia, the length of which, including the tail, is (·002 in.) ·05 m.m., or of the head alone (·0008 in.) ·02 m.m. The perithecia are sometimes naked, sometimes almost buried in the soft rotten wood.—*F. C.*

d. Pertusæ.

Perithecia smooth, flattened at the base, sub-innate, pierced, innato-superficial.—*Fr. S.M.* ii. *p.* 322.

2604. Sphæria pertusa. *Pers.* "Pierced Sphæria."

Scattered, black; perithecia emergent, conic, subrugose, pierced by the falling off of the conic ostiolum; asci clavate; sporidia biseriate, oblong-lanceolate, subconstricted, uniseptate, quadrinucleate.—*Fr. S.M.* ii. *p.* 464. *Fries. exs. no.* 389. *Eng. Fl.* v. *p.* 266. *Fckl. exs. no.* 931. *B. & Br. Ann. N.H. no.* 878, *t.* 10, *f.* 25. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 53. *Trematosphæria pertusa*, *Fckl. Sym. Myc. p.* 162.

On elm boards. Dec.—Feb. [Low. & Mid. Carolina.]

Differing from the typical form in not having any black stain. Asci clavate, elongated; sporidia biseriate, oblongo-lanceolate, for the most part strongly constricted in the centre, uniseptate (·0007-·0008 in.) ·0177-·02 m.m. each articulation containing two nuclei; occasionally two additional septa are formed, and the sporidia are curved either even, or constricted at the commissures.—*B. & Br.*

2605. Sphæria callicarpa. *Curr.* "Large-spored Sphæria."

Perithecia large, almost globose; ostiola mamillate; sporidia broadly fusiform, slightly constricted, with a median septum and 1-3 near each end, greenish, at length brown, usually with hyaline extremities.—*Curr. Linn. Trans.* xxii. *p.* 321, *t.* 58, *f.* 62.

On old palings. March. Blackheath.

Sporidia biseriate, very broadly fusiform (·0021-·003 in.) ·06-·075 m.m. long, usually slightly constricted in the middle, with a median septum, and from one to three other septa close together at each end of the sporidium, colour greenish, becoming brown with age, usually a hyaline tip at each end. —*F.C.*

2606. Sphæria Aspegrenii. *Fr.* "Blackthorn Sphæria."

Subgregarious, black; perithecia emersed, hemispherical, even, shining; ostiola simple, at length umbilicate, pierced; asci linear; sporidia uniseriate, oblong, triseptate.—*Fr. Kunze, M.H.* ii. *p.* 40. *B. & Br. Ann. N.H. no.* 879, *t.* 11, *f.* 26. *Fr. S.M.* ii. *p.* 465. *Melanomma Aspegrenii, Fckl. Sym. Myc. p.* 159, *t.* 3, *f.* 29.

On blackthorn.

Sporidia uniseriate but not concatenate, oblong, triseptate, enucleate (·0008 in.) ·02 m.m.

2607. Sphæria Jenynsii. *B. & Br.* "Jenyns's Sphæria."

Perithecia semi-immersed, subpruinose; ostiola conical or cylindrical: asci clavate; sporidia cymbiform, at length triseptate.—*B. & Br. Ann. N.H. no.* 875, *t.* 10, *f.* 22.

On dead wood. Sept.—Dec.

Half immersed in the wood, but not accompanied by any black stain; perithecia subpruinose or rugose; ostiola conical or cylindrical, sometimes slightly compressed; asci clavate; sporidia biseriate (·0012 in.) ·03 m.m. long, cymbiform, at length triseptate.—*B. & Br.*

2608. Sphæria pæcilostoma. *B. & Br.* "Furze-twig Sphæria."

Perithecia half-free, subglobose, opaque; ostiola variable, obsolete, conical, cylindrical; asci short; sporidia cymbiform, acute. —*B. & Br. Ann. N.H. no.* 876, *t.* 10, *f.* 23.

On twigs of furze. Twycross.

Perithecia quite free above, subglobose, opaque; ostiolum very variable in form, obsolete, conical, compressed, or abruptly cylindrical; asci clavate, short; sporidia (·001 in.) ·025 m.m. long, cymbiform, acute at either extremity, or even appendiculate, containing four nuclei. Allied to *S. Jenynsii*, but more freely developed, smaller, with shorter asci and smaller sporidia.—*B. & Br.*

2609. Sphæria brachythele. *B. & Br.* "Elder Sphæria."

Perithecia semi-immersed, globose; ostiola short, papillæform; asci cylindrical; sporidia large, subfusiform, constricted in the centre 1-5 septate.—*B. & Br. Ann. N.H. no.* 877, *t.* 10, *f.* 24.

On decorticated elder. Feb. Batheaston.

Perithecia rather large, scattered, half-immersed, globose, attenuated above into a short papillæform ostiolum; asci cylindrical; sporidia (·0013 in.) ·03 m.m long, subfusiform, with one side more convex when seen laterally, strongly constricted in the centre, at first uniseptate, at length 3-5 septate; endochrome dark.—*B. & Br.*

2610. Sphæria vilis. *Fr.* "Solitary pertuse Sphæria."

Solitary; perithecia convex, obtuse, small, black; base plane; ostiola papillate, deciduous; sporidia oblong, obtuse, triseptate, constricted at the septa, yellowish.—*Fr. S.M.* ii. *p.* 466. *Berk. Ann. N.H. no.* 184. *Fckl. exs. no.* 935. *Melanomma vilis, Fckl. Sym. Myc. p.* 160.

On rotten oak wood.

2611. Sphæria mastoidea. *Fr.* "Naked Ash Sphæria."

Scattered, black, shining; perithecia conical, semi-immersed, even; ostiola minute, papillæform, then pierced.—*Fr. S.M.* ii. *p.* 463. *Berk. Ann. N.H. no.* 183.

On dead ash twigs. King's Cliffe. [Low. & Mid. Carolina.]

B. Erumpentes.

Perithecia at length erumpent, almost superficial.

a. Obturatæ.

Perithecia at first innate, then erumpent and naked; ostiolum papillæform.

* *Parasitic.*

2612. Sphæria nigerrima. *Blox.* "Clustered Parasitic Sphæria."

Perithecia irregularly ovate or conical, often superimposed, forming a black tubercle; ostiola somewhat elongated and rounded; sporidia biseriate, hyaline, subelliptic, at length multiseptate.—*Curr. Linn. Trans.* xxii. *p.* 272. *B. & Br. Ann. N. H. no.* 869, *t.* 10, *f.* 19.

Parasitic on various species of *Diatrype*.

Asci clavate. Sporidia often swollen on one side, like the frustules of *Eunotia*, at length multiseptate, with one or two vertical dissepiments (·00083-·0005 in.) ·02-·0125 m.m. The perithecia are sprinkled over with short stiff bristles, they appear at first like the ostiola of the *Diatrype*. It approaches very near to *Dothidea*.

2613. Sphæria apotheciorum. *Mass.* "Lichen-cup Sphæria."

Conidia.—*Gymnosporium physciæ*, *Kalchbr. Szep. Gomb. Jeg.* 856. *Fckl. exs. no.* 100.

Ascophore.—Stroma black, rugulose, rather rough; perithecia aggregated, subrotund, papillate, confluent; asci somewhat obtuse, paraphyses sub-clavate; sporidia elliptic, bilocular, diaphanous.—*Mass. Lich. p.* 26, *f.* 41. *B. & Br. Ann. N.H. no.* 871. *Sphæria epicymatia*, *Wallr. Fl. Germ.* ii. *p.* 775. *Nyl. Prod. p.* 85. *Syn. p.* 42. *Sphæria lichenicola*, *Smrf. Lapp.* 218. *Fl. Dan. t.* 955, *f.* i. *Epicymatia vulgaris*, *Fckl. Sym. Myc. p.* 118.

On apothecia of *Parmelia subfusca*, &c. N. Wales, &c.

Berkeley states that the fruit is just like that of *Phacopsis varia*, Tul. If so the sporidia are triseptate, and (·00035 in.) ·009 m.m. long (·0003 in.) ·00744 m.m. broad.

2614. Sphæria thallophila. *Cooke.* "Sunken Lichen Sphæria."

Scattered or gregarious, semi-immersed in the lichen thallus; perithecia subglobose, carbonaceous, papillate, pierced; asci cylindrical; sporidia uniseriate, elliptical, uniseptate, not constricted, hyaline, at length pale greenish-yellow.

On thallus of *Lecanora subfusca*. Glenshee. Aug., 1856. (Dr. L. Lindsay.)

Sporidia (·0004 in.) ·01 m.m. long. It is not improbable that this is a naked *Sphæria* springing from the wood beneath, and perforating the thin lichen thallus. A single small specimen is all we have seen, and that was insufficient to satisfy us on this point.

2615. Sphæria ventosaria. *Linds.* "Lindsay's Lichen Sphæria."

Perithecia seated on thalline cones, as stellate points girt by a sort of thalline exciple, smooth and black, or pruinose; sporidia simple, then uniseptate, broadly ellipsoid or oval and constricted, brown.—*Lindsay*, *Trans. Roy. Soc. Ed.* xxiv. *p.* 439. xxv. *p.* 357. *Trans. Linn. Soc.* xxvii. *p.* 346, *t.* 50, *f.* 10. *Quart.*

Journ. Micr. Sc. xi. *n.s. p.* 31. *Microthelia ventosicola. Mudd. Brit. Lich. p.* 307 ?

On *Lecanora ventosa.* Lochnagar, &c.

* *Caulicolous.*

2616. Sphœria dioica. *Moug.* "Two-ranked Sphæria."

Scattered or subgregarious, semi-immersed, the matrix blackened; perithecia black, rough, often sulcate above, subconical; asci clavate, stipitate; sporidia crowded or biscriate, narrowly elliptical, obtuse, triseptate scarcely constricted, pale brown.—*Fr. El.* ii. *p.* 82. *Eng. Fl.* v. *p.* 253.

On furze. Shere. (Dr. Capron.)

The asci are always clavate. Sporidia (·0006 in.)
Mr. Currey states that the specimens of *S. dioica* in the Hookerian collection are only a sub-cuticular form of *S. pulvis-pyrius.* The specimens on furze, which are here referred to *S. dioica*, are quite different from *S. pulvis-pyrius*, the perithecia are much larger, less densely gregarious, different in shape, and with distinctly clavate asci.

2617. Sphæria nidula. *Sow.* "Nestling Sphæria."

Cæspitose, superficially innate; perithecia crowded, globose, papillate, black, very minute, punctato-rugose.—*Sow. t.* 394, *f.* 2. *Fr. S.M.* ii. *p.* 418. *Eng. Fl.* v. *p.* 254.

In little hollows of bean roots.

2618. Sphæria scoriadea. *Fr.* "Doubtful Sphæria."

Innate; stroma broadly effused, latent, black; perithecia horny, crowded, hemispherical, rather prominent, shining, pierced; sporidia biseriate, fusiform, reddish-brown.—*Fr. El.* ii. *p.* 87. *Berk. Ann. N.H. no.* 176. *Fries. exs. no.* 344. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 187 (*Leighton Angio. Lich. p.* 39, under *Verrucaria conferta*).

On birch twigs.

"I believe this prodnction to be a *Verrucaria.* The contents of the perithecia are grumous, containing biseriate fusiform sporidia."—*M.J.B.* Sporidia reddish-brown, opaque, lageniform, when young with a gelatinous envelope, the tips of the sporidia are paler than the body, they are irregular in length and breadth, varying from ·0016-·0028 in. in length. There is some doubt whether this plant be not a *Verrucaria.*—*F.C.*

2619. Sphæria juglandis. *Fr.* "Walnut Sphæria."

Gregarious; perithecia globose, at first depressed, and immersed, then erumpent, even, black, pierced with a simple ostio-

lum, grey within.—*Fr. S.M.* ii. *p.* 493. *Fries. exs. no.* 239. *Eng. Fl.* v. *p.* 271.

On walnut twigs.

Fuckel regards this simply as a *Diplodia*.

2620. Sphæria loniceræ. *Sow.* "Honeysuckle Sphæria."

Gregarious, erumpent; perithecia globose, nearly free, thin, black, soon torn and cup-shaped; ostiolum simple; sporidia uniseriate, colourless, elliptical, endochrome tripartite.—*Sow. t.* 393, *f.* 6. *Fr. S.M.* ii. *p.* 492. *Fries. exs. no.* 349. *Eng. Fl.* v. *p.* 271. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 115 (not *Fckl. Sym. Myc.*) *Cooke exs. no.* 262.

On honeysuckle. [Mid. Carolina.]

Sporidia (·0004-·0006 in.) ·01-·015 m.m.

2621. Sphæria obliterans. *B. & Br.* "Bleached-fir Sphæria."

Perithecia scattered, half covered by the bleached fibres of the matrix, collapsing, astomous; asci cylindrico-clavate; sporidia uniseriate, obovate, trisceptate, septa at length obliterated.—*B. & Br. Ann. N.H. no.* 890, *t.* 11, *f.* 34.

On bare fir-poles. Mar. Batheaston.

Sporidia (·0007 in.) ·0177 m.m. Septa at length obliterated, their position being still indicated by a slight constriction.

*** *Coprophilous.*

Fig. 394.

2622. Sphæria bovilla. *Cooke.* "Tailed cow-dung Sphæria."

Perithecia scattered, sub-globose, semi-immersed, black; ostiola prominent, pierced; sporidia 8, cylindrical, long, flexuous, containing numerous nuclei; each extremity furnished with a flexuous hair-like appendage, half the length of the sporidium, hyaline, greenish.

On cow dung. Aug. Shere. (Dr. Capron.)

This curious species resembles in some respects the *Cercophora mirabilis* of Fuckel (Sym. Myc. p. 245 t. vi. f. 20), but Dr. Capron is decidedly of opinion that the above sporidia are quite mature, and never become ovate, opaque-brown, with hyaline appendages, as in that species. Sporidia, without appendages (·002 in.) ·05 m.m long. (*Fig.* 394.)

******** *Culmicolous.*

2623. Sphæria arundinacea. *Sow.* "Reed Sphæria."

Conidia.—Stroma none; conidia erumpent, compact, globose, pellucid, blackish.—*Melanconium sphærospermum*, *Fr. S.M.* iii. *p.* 489. *Rabh. F.E. no.* 179. *Fckl. exs. no.* 86. *Bot. Zeit.* 1859, *t.* 11, *f.* 5. See no. 1387, ante.

Pycnidia.—Erumpent, linear, with scarcely any stroma; peritheeia in one or two rows, connate, with a very obsolete ostiolum; stylospores oblong, simple.—*Sphæropsis arundinacea*, *Berk. Outl. p.* 316.

Ascophore.—Somewhat covered, oblong, minute, greyish-black; stroma scarcely distinct; peritheeia very minute, stipate, rather compressed in 2 or 3 series; ostiola obsolete, white within; asci clavate; sporidia oblong, triseptate.—*S. Godini*, *Desm. exs. no.* 439. *Ann. Sc. Nat.* 1846, *p.* 49. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 202. *S. arundinacea. Sow. t.* 336. *B. & Br. Ann. N.H. no.* 603. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 200. *Berk. exs. no.* 82. *Eng. Fl.* v. *p.* 256. *Fr. S.M.* ii. *p.* 429. *Fckl. exs. no.* 907. *Pleospora arundinacea*, *Fckl. Sym. Myc. p.* 137, *t.* iii. *f.* 28.

On dead reeds. Spring. Common. [Low. Carolina.]

"Messrs. Berkeley and Broome state that *S. Godini* is identical with *S. arundinacea*, but in the Kew specimens the species differ in the colour of the sporidia, and in the number of septa, in *S. arundinacea* they are yellowish-brown. 3-5 septate, and in *Godini* colourless and uniseptate."—*F.C.*

Sporidia ·0010-·0016 in. The difference is most probably only one of age.

2624. Sphæria culmifraga. *Fr.* "Erumpent Grass Sphæria."

Scattered; peritheeia covered, erumpent, somewhat compressed, black; ostiolum short, naked, conical; sporidia curved, fusiform, multiseptate, one of the articulations swollen.—*Fr. S. M.* ii. *p.* 510. *Fries exs. no.* 373. *Eng. Fl.* v. *p.* 275. *B. & Br. Ann. N.H. no.* 614. *Fckl. exs. no.* 2245. *S. longa*, *Sow. t.* 393, *f.* 4. *Pleospora culmifraga*, *Fckl. Sym. Myc. p.* 137, *t.* 3, *f.* 21.

On culms of grass, &c. Common.

Two varieties are published by Desmazieres, and a third has been found at Rudloe, more highly developed, the peritheeia crowded, and slightly hispid, and the acute ostiola elevating the cuticle.

b. Ceratostomæ.

Ostiolum elongated, cylindrical, free, longer than the peritheeium, emergent.—*Fr. S.M.* ii. *p.* 322.

2625. Sphæria cirrhosa. *Pers.* "Tendril Sphæria."

SPERMOGONIA.—Spermatia ovato-cylindrical, hyaline.

CONIDIA.—On the tips of threads, ovate, triseptate, dark-brown.—*Fckl. Sym. Myc. p.* 127.

ASCOPHORE.—Scattered, black; perithecia immersed, subglobose, fibrillous; ostiola rugged, subfalcate, spinulose; sporidia biseriate, elliptical, colourless.—*Pers. Ic. Pict. t.* 24, *f.* 3. *Fr. S. M.* ii. *p.* 475. *Fries. exs. no.* 346. *Eng. Fl.* v. *p.* 267. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 71. *Fckl. exs. no.* 1804. *Ceratostoma cirrhosum, Fckl. Sym. Myc. p.* 127.

On soft rotten wood. [Mid. Carolina.]

Variable. Sometimes scattered, with the perithecia curiously fibrillous, the fibrillæ occasionally brown, sometimes, in harder wood, collected in rows or little fascicles, and almost destitute of fibrillæ. Sporidia (·0004-·0005 in.) ·01-·0125 m.m. long.

2626. Sphæria pilifera. *Fr.* "Thread-beaked Sphæria."

SPERMOGONIA.—Spermatia oblong-ovate, simple, hyaline.

ASCOPHORE.—Gregarious, naked, black; perithecia very small, globose, even; ostiola capillary, very long, acuminate; sporidia ?—*Fr. S.M.* ii. *p.* 472. *Fries. exs. no.* 25. *Nees. f.* 354. *Eng. Fl.* v. *p.* 266. *Ceratostoma piliferum, Fckl. Sym. Myc. p.* 128.

On pine wood. [Low. & Mid. Carolina.]

2627. Sphæria ligneola. *B. & Br.* "Smooth-beaked Sphæria."

Perithecia globose, subglaucous, smooth, immersed; neck elongated, obtuse; sporidia elliptic uniseptate.—*B. & Br. Ann. N.H. no.* 883, *t.* 11, *f.* 29.

On decayed oak. Jan. Somerset.

Perithecia scattered, immersed in the wood, globose, smooth, black, with a slight glaucous bloom; neck about as long as the perithecia, obtuse. Sporidia (·0003-·0004 in.) ·0075-·01 m.m. long, binucleate, at length uniseptate. Resembling young *S. cirrhosa*, but perfectly smooth and glaucous, and by no means fibrillose.—*B. & Br.*

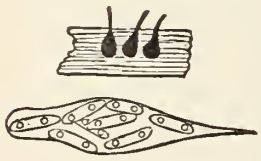


Fig. 395.

2628. Sphæria ampullasca. *Cooke.* "Flask-fruited Sphæria."

Perithecia gregarious or scattered, immersed, globose, black; ostiola nearly three times as long as the diameter of the perithecia, flexuous; asci ampullæform, truncate above, attenuated below;

sporidia inordinate, narrowly lanceolate, obtuse, with a large nucleus near each extremity, hyaline.

On rotten oak. Feb. Shere. (Dr. Capron.)

Tho very peculiar form of the asci is sufficient to distinguish this species. They are ·0025-·003 in. long. Sporidia (·0005 in.), ·0127 m.m. long. *(Fig.* 395.)

2629. Sphæria lampadophora. *B. & Br.* "Clustered Beak Sphæria."

Perithecia gregarious, globose, dingy, pruinose; neck long, flexuous, irregular; sporidia fusiform, curved, multiseptate.—*B. & Br. Ann. N.H. no.* 882, *t.* 11, *f.* 28.

On decayed wood. Oct.—April.

Gregarious; perithecia middle-sized, globose, brownish, pulverulent, or subtomentose; neck elongated, irregular, flexuous. Sporidia linear-fusiform (·003 in.) ·075 m.m. long, multiseptate. With the habit of *S. rostrata*, but with different fruit.

2630. Sphæria stylophora. *B. & Br.* "Patchy Beak Sphæria."

Perithecia at first covered, at length free, disposed in orbicular patches, ovate, attenuated upwards; ostiola longer than the perithecia; asci broadly clavate; sporidia fusiform, hyaline, uniseptate, appendiculate at either end.—*B. & Br. Ann. N.H. no.* 976, *t.* 17, *f.* 29.

On *Acer platanoides.* Mossburnford.

At first covered, then exposed; perithecia collected in little orbicular patches, ovate, attenuated above, with styliform ostiola longer than themselves; asci broadly clavate; sporidia biseriato, hyaline, fusiform, uniseptate, appendiculate at either end.—*B. & Br.*

C. Subtectæ.

Perithecia at first innate, concrete with the matrix, at length naked above; ostiola simple, sub-erumpent.—*Fr. S.M.* ii. *p.* 322.

a. Immersæ.

Perithecia immersed in the perennial parts of plants; neck short and erumpent.

* *Endoxylæ.*

2631. Sphæria livida. *Fr.* "Livid Sphæria."

Scattered; perithecia subglobose, nestling in a prominent elliptic grey tubercle formed from the wood; ostiola pierced; spor-

idia brown or yellowish brown, elliptical, triseptate.—*Fr. S.M.* ii. *p.* 479. *Fries. exs. no.* 316. *Eng. Fl.* v. *p.* 267. *Curr Linn. Trans.* xxii. *t.* 58, *f.* 77.

On dried branches (ivy, &c.). [Mid. & Up. Carolina.]

Spots rounded when there is but one perithecium, subelliptic when there are two together, and not distinctly defined at the base; perithecia immersed in the wood, depresso-globose, not stuffed, furnished with a short neck; ostiola rather prominent, at length pierced. I find also apparently the same species with several perithecia beneath each black elliptic spot, and the spots are 2-3 lines long.—*M. J. B.* Sporidia (·0005-·0007 in.) ·0127-·0177 m.m.

2632. Sphæria melanotes. *B. & Br.* "Black-spot Sphæria."

Spots elongated, blackish; perithecia covered; ostiola minute; asci linear; sporidia elliptic, brown.—*B. & Br. Ann. N.H. no.* 623, *t.* 9, *f.* 6.

On oak palings. Dec. Bathcaston.

Forming oblong, somewhat irregular, black patches about an inch long, sprinkled with the punctiform ostiola; perithecia immersed, scarcely visible except from their ostiola; asci linear; sporidia elliptic, brown (·0005 in.) ·0127 m.m. long. With somewhat of the habit of *S. livida*, but smaller perithecia, and different fruit. The black spots are scarcely at all raised. The perithecia do not raise the surface of the wood into little waves, as in *Sph anserina*. P.—*B. & Br.*

2633. Sphæria hypotephra. *B. & Br.* "Grey-spot Sphæria."

Spots effused, cinereous; perithecia covered, subglobose; ostiola rather obtuse, emergent; asci linear; sporidia elongated, curved, at length triseptate.—*B. & Br. Ann. N.H. no.* 624, *t.* 9, *f.* 7.

On oak rails. Nov. King's Cliffe.

Forming large cinereous spots. Perithecia covered, globose; ostiola rather obtuse, protruding; asci linear; sporidia uniseriate oblong, slightly curved, rather narrow, about (·001 in.) ·025 m.m. long, at length 3 septate, often binucleate. Allied to *S. melanotes*, but distinguished by the pale spots and differently shaped, larger sporidia.—*B. & Br.*

2634. Sphæria hemitapha. *B. & Br.* "Bleached-spot Sphæria."

Perithecia globose, semi-immersed, opaque, growing on white spots; ostiola papillæform; sporidia elliptic-oblong, triseptate. —*B. & Br. Ann. N.H. no.* 885, *t.* 11, *f.* 30.

On felled oak. Feb. Bath.

Growing on white bleached spots ; perithecia globose, the upper half free, opaque, not shining ; ostiolum small, papillæform ; asci linear-clavate ; sporidia biseriate (·00125 in.) ·03 m.m. long, oblong-elliptic, at length triseptate, but not torulose. Very near to *S. hypotephra*, but there are no cinereous spots, the perithecia are half exposed, and the sporidia larger.—*B. & Br.*

2635. Sphæria apiculata. *Curr.* " Buried railing Sphæria."

Perithecia large, subglobose, deeply buried ; ostiola somewhat gaping ; sporidia olive-brown, straight or slightly curved, biseptate, with a hyaline tip (*not S. apiculata Wallr. Fl. Germ. p.* 778, *nor Fckl. exs. no.* 918*).—Curr. Linn. Trans.* xxii. *p.* 326, *t.* 58, *f.* 96. *Cooke. exs. no.* 272.

On railings.

Curious both in habit and fruit. The perithecia are completely and deeply buried in the wood, and are sometimes scattered, sometimes in groups ; the perithecia seem eventually to throw off the wood above the ostiola, leaving deep depressions in the surface of the wood. Sporidia uniseriate, olive-brown, straight or very slightly curved, biseptate, each furnished with a hyaline tip, which is shut off from the rest of the sporidium by one of the septa ; length of sporidia (·001 in.) ·025 m.m.—*F.C.*

2636. Sphæria bacillata. *Cooke.* " Long-spored sunken Sphæria."

Perithecia scattered, ovate, immersed, at length the upper portion more or less exposed, black ; ostiolum conical, erumpent, pierced ; sporidia linear, straight, obtuse at the ends, the length of the ascus, multiseptate, hyaline, yellowish.—*Sphæria longispora, Capron, MSS.*

On decorticated rotten sticks. Shere. (Dr. Capron.)

Sometimes only the ostiolum is visible above the surface of the matrix, sometimes nearly one third of the perithecium is emergent, mostly following the course of the fibres. The sporidia are (·0076 in.) ·2 m.m. long, divided by septa throughout their entire length. This certainly does not accord with the brief characters of Currey's *S. longispora*, neither does it belong to the same section.

2637. Sphæria anserina. *Pers.* " Wavy Sphæria."

Perithecia ovate, immersed, raising the wood into minute papillæ; ostiola obtuse, erumpent ; asci sublinear ; sporidia elliptic, uniseriate, uniseptate.—*Pers. Ic. & Desc. t.* 1, *f.* 8. *Fr. S.M.* ii. *p.* 480. *B. & Br. Ann. N.H. no.* 889.

On dry wood. Shrewsbury.

The surface of the wood is raised by the perithecia into little waves. Sporidia (·0008-·001) ·02-·025 m.m., resembling the common type of *Diplodia*.

The *S. anserina* of Eng. Fl. v. p. 268, is a *Sphæropsis* (B. & Br. Ann. N.H. no. 623), probably a stylosporous condition of the above.

** *Endophloeæ.*

2638. Sphæria velata. *Pers.* "Veiled Sphæria."

Broadly effused, thin; perithecia scattered, immersed, covered with a black membranaceous crust; ostiola erumpent; sporidia crowded, colourless, narrowly almond shaped, endochrome 2-4 partite.—*Fr. S.M.* ii. *p.* 375. *Fries. exs. no.* 225. *Eng. Fl.* v. *p.* 246. *Sow. t.* 372 *f.* 10. *Curr. Linn. Trans.* xxii. *t.* 45, *f.* 104. *Fckl. exs. no.* 958. *Diaporthe velata, Nke. Pyr. Germ.* i. *p.* 287. *Rabh. F.E. no.* 1143.

On lime twigs. [Mid. Carolina.]

Surrounding the branches, and growing in the inner bark, perforating the epidermis with the ostiola and at length throwing it off; perithecia minute, erect, ovato-globose, sometimes solitary, sometimes irregularly aggregate, scarcely disposed in circles, by no means stipate, nestling in the bark itself, covered with a thin patchy stroma, which is tuberculated with the perithecia; ostiola erumpent, irregular, opaque.—*Fries.*

Sporidia (·0005 in.) ·0127 m.m.

2639. Sphæria ciliaris. *Curr.* "Thread-bearing Sphæria."

Concealed; perithecia small, subglobose, bearing threads of *Helminthosporium* on their surface; sporidia biseriate, colourless, narrow, pointed at the extremities, quadrinucleate.—*Curr. Micro. Journ.* vii. *p.* 232, *t.* 11, *f.* 15.

On ash branches. Oct. Weybridge.

Covering the branches with perithecia, which are concealed (with the exception of the ostiola) beneath the cuticle, and many parts of them rough with the erect threads of *Helminthosporium*. Sporidia sometimes almost almond-shaped, sometimes strongly constricted in the middle, always (or almost always) with four nuclei, from (·0005-·0009 in.) ·0125-·022 m.m. long.

2640. Sphæria celata. *Curr.* "Concealed Sphæria."

Perithecia round; solitary, or in small groups, mostly concealed; ostiolum short, somewhat flat, rather gaping; sporidia biseriate, dark rich brown, oblong, constricted in the middle.—*Curr. MSS. Berk. Outl. p.* 398. *Sp. obtecta, Curr. Micr. Journ.* vii. *p.* 233, *t.* xi. *fig.* 16. *B. & Br. Ann. N.H. no.* 979, *t.* 17, *f.* 32.

On wych elm.

Sporidia (·0012-·0015 in.) ·03-·035 m.m. long.

Completely concealed by the cuticle; perithecia subglobose, scarcely becoming free from the matrix, walls thick, jet black, gelatine white. Asci clavate. Sporidia biseriate, in an early stage biconical, pointed at either end, endochrome proportionally small, when old shorter, biconical, obtuse, dark brown, the outer coat being entirely absorbed.

2641. Sphæria xylostei. *Pers.* "Woodbine Sphæria."

Macrostylospores—Oblong, ovate, constricted, brown, 3-5 septate, muriform.

Pycnidia.—Stylospores didymous, oblong, dark brown.—*Diplodia Loniceræ, Fckl. exs. no.* 1951.

Ascophore.—Gregarious, staining black; perithecia covered, emergent, entire, globose; ostiola slightly prominent, seated on a black spot, at length pierced; sporidia dark brown, bordered, elliptical.—*Fr. S.M.* ii. *p.* 487. *Fries. exs. no.* 189. *Eng. Fl.* v. *p.* 270. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 84. *S. semi-immersa, Grev. Fl. Ed. p.* 361. *Didymosphæria xylostei, Fckl. Sym. Myc. p.* 141. *Fckl. exs. no.* 914. *Amphisphæria xylostei, De Not. Sfer. Ital. no.* 74.

On woodbine.

Sporidia (·0006-·0007 in.) ·015-·0175 m.m. long.

2642. Sphæria decedens. *Fr.* "Immersed hazel Sphæria."

Gregarious; perithecia globose, immersed, black, neck straight; ostiola erumpent, lacerating the epidermis.—*Fries. exs. no.* 81. *Berk. Mag. Zool. & Bot. no.* 24. *Nees. f.* 340. *Fr. S.M.* ii. *p.* 481.

On hazel.

Perithecia sometimes solitary, sometimes crowded, immersed in the inner bark, attenuated into a short neck.—*Fries.*

2643. Sphæria discutiens. *Berk.* "Sunken Elm Sphæria."

Broadly effused; perithecia sunk in the inner bark, at length throwing off the epidermis by means of their long, cylindrical, rather scabrous ostiola, covered with a dull black stroma; sporidia biseriate or crowded, 1-3 septate, colourless, almond-shaped.—*Eng. Fl.* v. *p.* 245. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 112.

On elm branches.

Perithecia deeply buried. Ostiola long and protruding. Sporidia (·0005 in.) ·0127 m.m. long.

2644. Sphæria fraxinicola. *Curr.* "Concealed Ash Sphæria."

Perithecia sub-lageniform; ostiolum pointed or nipple-like, base sometimes adnate, piercing the bark; sporidia uniseriate, elliptical, biseptate, colourless.—*Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 34. *B. & Br. Ann. N.H. no.* 1098.

On dead ash branches. Sept. Near Lewes.

Peritheeia with the base sometimes adnate to the wood, and leaving a circular depression when detached, piercing through the inner bark, and just through the outer; the ostiola fall off with a circumscissile fissure. sometimes the perithecia may be stripped off with a fragment of the inner bark. Sporidia (·0005-·0006 in.) ·0125-·015 m.m. long, biseptate, trinucleate, colourless, the outer membrane and septa sometimes invisible.

2645. Sphæria verecunda. *Curr.* "Minute sunken Sphæria."

Perithecia subglobose or conical, very small, with a pointed or nipple-shaped ostiolum, which just penetrates the outer bark. Sporidia pale brown, with 5 (rarely 6) transverse septa, and 1-3 longitudinal septa, constricted at each septum, mostly uniseriate and overlapping, occasionally biseriate.—*Curr. Linn. Trans.* xxiv. *t.* 25, *f.* 3. *B. & Br. Ann. N.H. no.* 1099.

On sticks. October. Batheaston.

Sporidia (·0008-·001 in.) ·02-·025 m.m. long.

2646. Sphæria blepharodes. *B. & Br.* "Depressed twig Sphæria."

Perithecia covered, depresso-globose; ostiola twice as long; asci clavate; sporidia biseriate, hyaline, fusiform.—*B. & Br. Ann. N.H. no.* 978, *t.* 17, *f.* 31.

On twigs of *Acer pseudo-platanus.* Mossburnford.

Completely covered by the cuticle; peritheeia globose, depressed; ostiola piercing the cuticle, twice as long; asci elavate; sporidia biseriate, hyaline, fusiform (·0005 in.) ·0127 m.m. long.

*** *Endocaulæ.*

2647. Sphæria spiculosa. *Pers.* "Shining patch Sphæria."

Effused, immersed, black; perithecia globose; ostiola very slender, long, round, erumpent; sporidia narrowly almond-shaped, acuminate, colourless, quadrinucleate, then quadripartite.—*Fr. S.M.* ii. *p.* 369. *Fries. exs. no.* 307. *Eng. Fl.* v. *p.* 245. *Cooke exs. no.* 381. *Curr. Linn. Trans.* xxii. *t.* 47, *f.* 111. *Fckl. exs. no.* 957. *Mamiania spiculosa, De Not. Schema, p.* 37. *Euporthe spiculosa, Nke, Pyr. Germ.*

On willows and herbaceous stems.

* *var.* **pulla.** *Nke.* Spermatia oblong-lanceolate, with 1-2 nuclei; simple, hyaline.—*Phoma hederæ, Desm. exs. no.* 350. *Fckl. exs. no.* 1720.

Ascophore.—*Diaporthe pulla*, *Nke. Pyr.* i. *p.* 249. *Fckl. exs. no.* 957.

On ivy stems.

Staining the branches on which it grows of a bright shining black; perithecia immersed, irregularly scattered, sometimes groupod, easily known by its black appearance and hair-like ostiola; sporidia (·0004-·0005 in.) ·01-·0125 m.m. long.

2648. Sphæria inquilina. *Fr.* "Black patch Sphæria."

Perithecia immersed, covered with the blackened epidermis, latent, very thin, pallid; nucleus black; ostiola punctiform, black, prominent; sporidia biseriate, colourless, subfusiform, constricted, 4-nucleate.—*Fr. El.* ii. *p.* 100. *Fries. exs. no.* 402. *Eng. Fl.* v. *p.* 276. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 92.

On stems of *Umbelliferæ*.

The perithecia frequently drop out, leaving a white hollow in the matrix, closely resembling *S. spiculosa*. Sporidia (·0004-·0005 in.) ·01-·0125 m.m.

2649. Sphæria Berkeleyi. *Desm.* "Berkeley's sunken Sphæria."

Perithecia minute, latent, immersed in the stem; ostiola conic-acuminate, punctiform; asci minute, linear; sporidia subelliptic.—*Desm. Ann. Sc. Nat.* 1837, viii. *p.* 358. *S. angelicæ*, *Berk. exs. no.* 88. *Mag. Zool. & Bot. no.* 28, *t.* 3, *f.* 7.

On stems of *Angelica sylvestris*. Mar. King's Cliffe.

Minute, invisible to the naked eye, except the stem is wet, then the extremely minute protruded tips of the ostiola are seen in single rows upon the ribs. Perithecia black or brownish, immersed in the woody part of the stem, globose, with an abrupt, conical, subobtuse mouth, pierced with a minute orifice. Contents of the perithecia pink, oozing out, and forming a little halo round the ostiolum. Asci minuto, linear, containing a few subelliptic sporidia, accompanied by variously sized globules of an oily matter.

2650. Sphæria scirpicola. *D.C.* "Bulrush Sphæria."

Scattered, minute, black; perithecia immersed, globose, neck very short; ostiolum naked, punctiform, subglobose; sporidia oblong, somewhat curved, triseptate, with the articulations slightly swollen.—*Fr. S.M.* ii. *p.* 511. *Fries exs. no.* 150. *Eng. Fl.* v. *p.* 275. *B. & Br. Ann. N.H. no.* 641*.

On stems of *Scirpus lacustris*, *Typha* and *Carex*. Common.

2651. Sphæria phomatospora. *B. & Br.* "Little spored Sphæria."

Immersed; peritheeia depressed, ellipsoid; ostiola papillæform; asci linear; sporidia uniseriate, oblong-elliptic, minute, hyaline, binucleate.—*B. & Br. Ann. N.H. no.* 647, *t.* 11, *f.* 33. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 94.

On dead potato stalks. March. Gloucestershire.

Immersed, and with the exception of the black punctiform ostiolum, quite invisible, being concealed by the woody tissue. Contents of perithecia pale salmon coloured. Asci extremely delicate, linear. Sporidia hyaline, uniseriate, oblong-elliptic, minute, obtuse, with a single nucleus at either extremity. Closely resembling the spores of a *Phoma*.—*B. & Br.*
Sporidia (·0003-·0004 in.) ·0075- 01 m.m. long.

b. Obtectæ.

Perithecia immersed in the bark, with a short, erumpent neck.

† *Rameales.*

* Sporidia cylindrical, curved or straight, simple, rarely septate, hyaline.—*Cryptosphæria, De Not.*

2652. Sphæria lanata. *Fr.* "Woolly-brown Sphæria."

Perithecia covered, free, globose, clad with ferruginous-brown wool; ostiola erumpent, black; sporidia minute, curved, hyaline; asci broadly elliptic.—*Fr. S.M.* ii. *p.* 482. *Berk. Ann. N.H. no.* 185. *Fries. exs. no.* 159. *Fckl. exs. no.* 805. *Enchnoa lanata, Fr. S.V.S. p.* 393. *Fckl. Sym. Myc. p.* 150, *t.* iv. *f.* 15.

On birch. Appin.

Peritheeia very large.

2653. Sphæria glis. *B. & Curr.* "Dormouse Sphæria."

Perithecia depressed in the middle, nestling beneath the cuticle, astomous; mycelium ample, tomentose, brown; sporidia oblong, pale brown, curved, very obtuse, quadrinucleate.—*B. & Br. Ann. N.H. no.* 884. *Curr. Linn. Trans.* xxii. *t.* 57, *f.* 1. *Fckl. exs. no.* 2252. *Enchnoa glis, Fckl. Sym. Myc. p.* 150.

On oak twigs. Sept. Weybridge.

Completely concealed by the cuticle, which shows when removed a dense mycelium containing numerous depressed astomous peritheeia. Sporidia (·0008-·0009 in.), ·02-·022 m.m. long, sausage-shaped, very obtuse, 4-nucleate. Intermediate between *S. lanata* and *S. hirta*.—*B. & Br.* Perithecia rather

large, round and very flat, seated on a dense subiculum, usually entirely hidden beneath the bark, not erumpent, but raising the bark into smooth, rounded, or elongated swellings; perithecia and subiculum usually of a dark dirty-green tinge.—*F.C.*

2654. Sphæria pruinosa. *Fr.* "Frosted Sphæria."

Gregarious; perithecia covered, depressed, adnate with the epidermis, frosted with grey meal; ostiola bursting forth in a bullate manner.—*Fr. S.M.* ii. *p.* 486. *Fries. exs. no.* 82. *Moug. exs. no.* 968. *Eng. Fl.* v. *p.* 269. *Berk. exs. no.* 85.

On ash twigs. Spring. [Mid. & Up. Carolina.]

Easily known when perfect by the grey frosted perithecia, which are deeply umbilicate beneath, by collapsing and separate, together with the epidermis, from the inner bark; sometimes, however, they are retained by the bark, and in that case the mealiness is seen only with great difficulty. Ostiola bursting through the cuticle and making the matrix rough, like a nutmeg grator, pierced with a round, depressed orifice.—*M.J.B.*

2655. Sphæria vibratilis. *Fr.* "Hidden Sloe Sphæria."

Scattered; perithecia entire, covered, globoso-depressed, even, black; ostiolum very minute, latent; sporidia cylindrical, curved, minute, hyaline.—*Fr. S.M.* ii. *p.* 482. *Fries. exs. no.* 315. *Eng. Fl.* v. *p.* 278. *Cryptosphæria vibratilis, De Not. Schema p.* 57. *Micro. Ital.* viii. 10. *Calosphæria vibratilis, Nke. Pyr. Germ. p.* 97.

On dead sloe.

When the epidermis is stripped off and held to the light, it is found to be perforated by the minute ostiola, though externally there is but a very slight indication of the presence of the perithecia.—*M.J.B.*

"Sporidia uniseriate, pale-brown, oblong-elliptic, slightly curved; endochrome bipartite."—*Curr. Linn. Trans.* xxii. *f.* 74.

2656. Sphæria millepunctata. *Grev.* "Thousand Point Sphæria."

Scattered; perithecia globose, persistent, black; ostiola slightly prominent, very minute punctiform, flattened; sporidia biseriate, or crowded, pale-brown, curved.—*Grev. t.* 201. *S. corticis, Sow. t.* 372, *f.* 5. *Fr. S.M.* ii. *p.* 481. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 108. *Fckl. exs. no.* 908. *Berk. exs. no.* 84. *S. populina, Pers. Ic. Pict. t.* 21, *f.* 5, 6. *Cryptosphæria millepunctata, Fckl. Sym. Myc. p.* 212.

On ash twigs. Common.

At first sight from the smoothness of the branches on which it grows resembling a *Verrucaria*. Sporidia (·0006-·0012 in.) ·015-·03 m.m. long.

2657. Sphæria salicella. *Fr.* "Minute-willow Sphæria."

Conidia.—Conidia oblong, straight or curved, obtuse, hyaline uniseptate.—*Discella carbonacea, B. & Br. no.* 426. *Phacidium, Fckl. exs. no.* 1100.

Ascophore.—Covered; perithecia distinct, minute, seated beneath elongated pale patches of the epidermis; ostiola cylindrical, erumpent; sporidia biseriate, colourless, uniseptate, elliptical, often constricted.—*Fr. S.M.* ii. *p.* 377. *Fries. exs. no.* 188. *Eng. Fl.* v. *p.* 278. *Fckl. exs. no.* 800. *Diaporthe salicis, Nke. Fckl. exs. no.* 1987. *Cryptospora salicella, Fckl. Sym. Myc. p.* 193. *S. salicina, Curr. Linn. Trans.* xxii. *t.* 48, *f.* 149.

On willow branches. Common. [Up. Carolina.]

Sporidia (·0009 in.) ·022 m.m. long.

2658. Sphæria ocellata. *Fr.* "Eyelet Sphæria."

Scattered; perithecia immersed, globose, persistent, black; ostiola solitary, umbilicate, exserted from a truncate white disc; sporidia colourless, slightly curved, rounded or acute at the ends. —*Fr. S.M.* ii. *p.* 480. *Eng. Fl.* v. *p.* 268. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 86. *S. brevis, Sow. t.* 394, *f.* 4. *Halonia ocellata, Fr. S.V. S. p.* 397. *Cryptosphæria ocellata, De Not. Schema p.* 57.

On branches of ash, willow, &c.

Externally it at first sight resembles the state of *Stictis radiata* with an entire border, on a more minute investigation it might be taken for *Valsa nivea* or *V. leucostoma*, but the perithecia are solitary without any conceptaculum. —*M.J.B.* Sporidia (·0004 in.) ·01 m.m. long.

2659. Sphæria farcta. *B. & Br.* "Stuffed Sphæria."

Covered, scattered; perithecia solitary, globose, at length collapsed; neck short; ostiolum obtuse, at length perforating the cuticle; asci clavate, obtuse; sporidia oblong, rather obtuse at either end, 3-4 nucleate.—*B. & Br. Ann. N.H. no.* 631, *t.* 10, *f.* 15.

On dead elm twigs. Jan. Batheaston.

Scattered, scarcely conspicuous externally except from the slight projection over each perithecium, which is at length perforated by the obtuse ostiolum. Perithecia globose, collapsing when dry; neck short; asci clavate, subcylindrical, obtuse, filled with numerous oblong-linear sporidia, which are slightly obtuse at either end, and contain three or more globose nuclei. Resembles externally *V. hypodermia*, but the perithecia are solitary and the fruit different.—*B. & Br.*

2660. Sphæria revelata. *B. & Br.* "Uncovered Sphæria."

Covered, globose, large ; ostiola short, papillæform, ultimately exposed; asci linear, flexuous ; sporidia uniseriate, oblong, biseptate.—*B. & Br. Ann. N.H. no.* 634, *t.* 11, *f.* 18.

On branches of lilac, alder, &c. Jan. Apethorpe.

At first completely concealed beneath the rough bark, and at length only manifest from the ostiola thrusting off little patches of the matrix, and then appearing solitary or scattered on white spots Perithecia globose, large ; ostiola papilliform, distinct ; asci linear, flexuous ; paraphyses long, slender ; sporidia uniseriate, oblong, hyaline, biseptate, with very distinct endochromes.—*B. & Br.*

2661. Sphæria quadrinucleata. *Curr.* "Four-nucleate Sphæria."

Perithecia small, subglobose; ostiola mamillate, piercing the outer bark; sporidia biseriate, closely packed, colourless, narrowly oblong, pointed or rounded at the ends, quadrinucleate.—*Curr. Linn. Trans.* xxii. *p.* 325, *t.* 58, *f.* 90.

On sticks. Sept. Weybridge.

Sporidia (·0006 in.) ·015 m.m. long.

2662. Sphæria aucta. *B. & Br.* "Appendiculate Alder Sphæria."

Scattered, covered ; perithecia globose, collapsed, minutely tomentose, neck oblique, constricted below, confluent with the shortly fusiform ostiolum ; asci large ; sporidia oblong-elliptic, appendiculate at either end, 1-3 septate.—*B. & Br. Ann. N.H. no.* 628, *t.* 10, *f.* 11. *Fckl. exs. no.* 1998. *Calospora aucta, Fckl. Sym. Myc. p.* 191. *Cryptospora aucta, Tul. Carp.* ii. *p.* 152.

On twigs of birch and alder.

Scattered, scarcely visible externally, except from the swelling of the bark above the perithecia. Perithecia globose, obscurely tomentose, soon collapsed. Asci broad, delicate. Sporidia elliptic, with a truncate process at either extremity; at first uniseptate, with an endochrome of the same form as the cells. This eventually is divided into two nuclei, between which a new septum is formed, so that the sporidia have either one or three septa, in which latter case there is a constriction at each articulation.—*B. & Br.*

2663. Sphæria ditopa. *Fr.* "Variable Alder Sphæria."

Scattered; perithecia covered, free, globose, at length collapsed, black ; ostiola erumpent ; asci polysporous, or octosporous ; sporidia hyaline. — *Cryptospora suffusa, var. minor, Tul. Carp.* ii. *p.* 145.

forma. **polyspora.** Sporidia crowded, numerous, oblong, narrow, rounded, or somewhat pointed at the ends.—*Sphœria ditopa, Fr. S.M.* ii. *p.* 381. *B. & Br. Ann. N.H.* ix. *no.* 631. *t.* 10, *f.* 15*. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 89. *Fckl. exs. no.* 799. *Cooke exs. no.* 384. *Cryptosphœria ditopa, De Not. Schema.*

forma. **octospora.** Sporidia biseriate, oblong-elliptic, obtuse at either end, biseptate.—*Sphœria conformis, B. & Br. Ann. N. H. no.* 635, *t.* 11, *f.* 19. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 88.

On dead alder twigs.

Both forms are usually associated together. Messrs. Tulasne consider them as a *minor* condition of *Valsa suffusa*, to which we are at present unwilling to assent without further evidence. The sporidia in the polysporous form are (·0006-·0007 in.) ·015-·0177 m.m. long, and in the octosporous form (·0007-·0008 in.) ·0177-·02 m.m. long.

* Sporidia mostly fusiform, 4-nucleate or multiseptate, hyaline.

2664. Sphæria vepris. *De Laer.* "Hidden Bramble Sphæria."

Perithecia very small, punctiform, just penetrating the bark with their minute ostiola; sporidia biseriate, colourless, subfusiform, wide in the centre, sides flexuous, usually elongated at each end into a hyaline, mucronate appendage, quadrinucleate. —*Rabh. F.E. no.* 143. *Fckl. exs. no.* 1994. *Sphœria rubi, Curr. Linn. Trans.* xxii. *t.* 58, *f.* 91. *Sphœria rostellata, f. minor, Desm. exs. no.* 783. *Diaporthe vepris, Nke. Pyr. Germ. p.* 300.

On bramble. Sept. Weybridge.

2665. Sphæria sepincola. *Fr.* "Hidden stem Sphæria."

Gregarious; perithecia covered, globose, opaque, subrugose, white within, with a central nucleus, pierced with a simple ostiolum; asci slender, clavate; sporidia biseriate, oblong, subfusiform, hyaline.—*Fr S.M.* ii. *p.* 498. *Eng. Fl.* v. *p.* 271. *B. & Br. Ann. N.H. no.* 636*. *t.* 11, *f.* 21. *Fckl. exs. no.* 2026. *Cooke exs. no.* 263. *S. Gardneri, Berk. Fl. Forf.*

On various plants. [Up. Carolina.]

Fuckel describes the sporidia as triseptate.

2666. Sphæria persistens. *B. & Br.* "Persistent rose Sphæria."

Scattered, adnate to the wood, at length exposed by the decay of the bark, and naked, subglobose; ostiola minute, dis-

tinct; asci clavate; sporidia biseriate, hyaline, fusiform, constricted in the centre, curved, with four sporidiola.—*B. & Br. Ann. N.H. no.* 637, *t.* 11, *f.* 22.

On dead shoots of rose. Mar. King's Cliffe.

Scattered over the branches, and so immersed in the bark as not to form any pustules, exposed and persistent when the matrix is decayed, globose, with a minute distinct ostiolum. Asci clavate, containing two rows of sporidia. Sporidia hyaline, fusiform, straight when seen from behind, slightly curved when seen laterally, constricted in the centre, each division containing two globose sporidiola.—*B. & Br.*

2667. Sphæria intermixta. *B. & Br.* "Mixed rose Sphæria."

Very minute, scattered, covered with the cuticle, black; perithecia depressed, convex above, perforated; asci clavate; sporidia biseriate, hyaline, clavato-fusiform, triseptate.—*B. & Br. Ann. N.H. no.* 639, *t.* 11, *f.* 24.

On rose twigs.

Mixed with *S. fuscella*, but smaller. Scattered, seated beneath the cuticle; perithecia very minute, convex, depressed, perforated in the centre, black; asci clavate; sporidia biseriate, hyaline, clavato-fusiform, triseptate. The asci are large for the size of the perithecia.—*B. & Br.*

2668. Sphæria pusilla. *Curr.* "Parallel little Sphæria."

Perithecia small, globose, bursting in somewhat parallel lines through the surface of the wood; sporidia biseriate, colourless, slightly curved, with many nuclei, fusiform.—*Curr. Berk. Outl. p.* 399. *Sph. seriata, Curr. Linn. Trans.* xxii. *p.* 329, *t.* 59, *f.* 121.

On wood.

Sporidia (·0008 in.) ·02 m.m. long.

2669. Sphæria Ashwelliana. *Curr.* "Covered Fir Sphæria."

Perithecia? sporidia uniseriate or biseriate, colourless or greenish, elliptical, mostly pointed at each end, slightly constricted in the middle, 1-4 septate, hyaline.—*Curr. Linn. Trans.* xxii. *p.* 327, *t.* 59, *f.* 107.

On fir branches. Oct. Weybridge.

Sporidia (·0010-·0014 in.) ·025-·035 m.m. long.

2670. Sphæria clypeata. *Nees.* "Shining capped Sphæria."

Gregarious; perithecia depressed, covered with the innate, blackened epidermis; ostiola emergent, conico-truncate; asci

linear; sporidia uniseriate, oblong 4-5 septate.—*Nees. f.* 355. *Eng. Fl.* v. *p.* 270. *B. & Br. Ann. N.H. no.* 888*.

On bramble, *Epilobium*, &c.

Easily known by the shining black spots of the epidermis, which cover the perithecia, and by its neat appearance. Sporidia (·0008 in.) ·02 m.m. long. *S. clypeata*, *Fr. S.M.* ii. *p.* 487. *Fries exs. no.* 398, appears to be different (*B. & Br. Ann. N.H. no.* 613.)

2671. Sphæria melina. *Br. & Br.* "Brown stained Sphæria."

Sub-cuticular, globose; ostiola minute; asci sub-linear; sporidia uniseriate, cymbiform, triseptate.—*B. & Br. Ann. N.H. no.* 888, *t.* 11, *f.* 33.

On dead ash twigs. Mar. Batheaston.

Perithecia immersed in the bark, which is stained brown immediately above them, piercing the cuticle by a minute ostiolum; asci elongated, linear, obtuse; sporidia uniseriate, subcymbiform when seen laterally, triseptate (·0009 in.) ·022 m.m. long.

*** Sporidia coloured, bilocular.—*Amphisphæria, de Not.*

2672. Sphæria dochmia. *B. & Br.* "Gouty Sphæria."

Scattered, covered; perithecia solitary, ovate, oblique, at length collapsed; neck very short, constricted; ostiola flattened; asci cylindrico-clavate, obtuse; sporidia biseriate, oblong, slightly curved, at length uniseptate, hyaline.—*B. & Br. Ann. N.H. no.* 630, *t.* 10, *f.* 13.

On dead elm twigs. Jan. Batheaston.

Scattered over the twigs, visible externally from the swellings caused by the perithecia; perithecia somewhat ovate, oblique, collapsed when dry, neek extremely short and somewhat constricted; ostiolum, broad, obtuse, perforated in the centre; sporidia oblong, very obtuse, slightly curved, at length uniseptate.—*B. & Br.*

2673. Sphæria trivialis. *B. & Br.* "Common Twig Sphæria."

Scattered, covered; perithecia depressed, minute; ostiola obsolete; asci large, clavate, obtuse; sporidia elliptic, uniseptate. —*B. & Br. Ann. N.H. no.* 632, *t.* 10, *f.* 16.

On dead twigs. Feb. Batheaston.

Scattered, covered by the cuticle, which appears brownish over each perithecium, but is really colourless; perithecia depressed, elliptie; ostiola obsolete; asci broad, clavate, containing eight broadly elliptic, uniseptate sporidia.—*B. & Br.*

2674. Sphæria futilis. *B. & Br.* "Blackened rose Sphæria."

Scattered, covered by the blackened cuticle; peritheeia subglobose; asci linear; sporidia uniseriate, short, oblong-elliptic, uniseptate.—*B. & Br. Ann. N.H. no.* 638, *t.* 11, *f.* 23.

On dead rose twigs. Mar. King's Cliffe.

Minute, scattered, covered by the blackened cuticle, so as to present little black specks. Asci linear; sporidia uniseriate, short, oblong-elliptic, hyaline, sometimes slightly constricted in the centre, uniseptate. The septum appears to be continued through the external as well as the internal membrane. The sporidia have much the form which is so common in *Diplodia*.

2675. Sphæria oblitescens. *B. & Br.* "Covered Cornel Sphæria."

Perithecia depressed, covered; ostiola obscure; asci linear, elongated; sporidia oblong-elliptic, very obtuse, uniseptate.—*B. & Br. Ann. N.H. no.* 887, *t.* 11, *f.* 32.

On dead twigs of *Cornus*. Jan. Spye Park.

Perithecia covered by the cuticle, depressed, moderately large; asci cylindrical, elongated; sporidia uniseriate, oblong-elliptic, very obtuse, uniseptate, slightly constricted at the commissure (·0005 in.) ·0125 m.m. long; paraphyses linear, some of them containing one or two sporidia. The cuticle is occasionally discoloured above the perithecia.—*B. & Br.*

2676. Sphæria epidermidis. *Fr.* "Common brown-spored Sphæria."

Scattered; perithecia covered, prominent, even, small, at length collapsed and plane, astomous; sporidia uniseptate, of two apposed, rather irregular cones, coloured.—*Fries. exs. no.* 19 (*partly*) *Berk. Ann. N.H. no.* 186. *B. & Br. Ann. N.H. no.* 639*. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 119. *Fckl. exs. no.* 1770. *Didymosphæria epidermidis, Fckl. Sym. Myc. p.* 141. *Sphæria araucariæ, Cooke Seem. Journ. Bot.* iv. (1866), *t.* 45, *f.* 12.

On privet, elder, bramble, &c. [Low. Carolina.]

Very variable, especially in the size of the sporidia. A form occurs on bramble stems with the asci usually tetrasporous (*Cooke Seem. Journ.* 1866, iv. *t.* 45, *f.* 10). Sporidia (·0004 in.) ·01 m.m. long.

2677. Sphæria diplospora. *Cooke.* "Twin-spored Bramble Sphæria."

Pycnidia.—Peritheeia scattered, covered with the epidermis, prominent, subglobose, black; stylospores elliptical, dark-brown, rather opaque, uniseptate.—*Diplodia rubi, Fr. S.V.S. p.* 417. *Fckl. exs. no.* 536. *Cooke Seem. Journ.* (1866), iv. *no.* 33.

Ascophore.—Erumpent, cæspitose; perithecia subglobose, papillate, bursting through elongated fissures in the bark, black; asci elongated, cylindrical; sporidia uniseriate, elliptic, uniseptate, brown.—*Cooke Seem. Journ.* (1866), iv. *t.* 45, *f.* 7. *Didymosphæria rubi, Fckl. Sym. Myc. p.* 141 (1869). *Sphæria epidermidis.* Fr. var. *rubi, Auct.*

On bramble.

Sometimes the perithecia are arranged in short lines.

2678. Sphæria appendiculosa. *B. & Br.* "Appendiculate Sphæria."

Perithecia scattered, globose, nestling under the blackened epidermis in small orbicular polished spots, pierced in the centre; sporidia ovate-lanceolate, appendiculate.—*B. & Br. Ann. N.H. no.* 613, *t.* 7, *f.* 20. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 97.

On dead bramble.

Perithecia globose, scattered, nestling under small orbicular, black shining specks, and penetrating them by the ostiolum, round which there is often a little white meal; sporidia ovato-lanceolate, at first hyaline with an apiculate process which gradually separates by a constriction, and ultimately falls off. Resembling closely *S. tomicum*, Lev. but differing materially in the much larger and more highly developed sporidia.—*B. & Br.* Sporidia (·001 in.) ·025 m.m. with the appendage.

*** Sporidia coloured, with 3, or more septa.

2679. Sphæria fuscella. *B. & Br.* "Brown Rose Sphæria."

Scattered, covered; perithecia brown, depressed; asci linear, obtuse; sporidia uniseriate, oblong-elliptic, sometimes slightly curved, triseptate.—*B. & Br. Ann. N.H. no.* 636, *t.* 11, *f.* 20. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 103.

On dead twigs of rose. March. Easton.

Scattered, forming minute pustules; perithecia depressed, subglobose, brown; asci linear, containing eight sporidia in a single row; sporidia pale brown, oblong-elliptic, obtuse, triseptate, by no means constricted at the articulation, sometimes slightly curved. Distinguished from *S. sepincola* by its minute brown perithecia, and even elliptic obtuse sporidia. There is no sign of ostiolum externally.—*B. & Br.* Sporidia (·0007 in.) ·0177 m.m. long.

2680. Sphæria unicaudata. *B. & Br.* "One-tailed Sphæria."

Perithecia minute, covered, subglobose, collapsing; sporidia clavate, quadriseptate, caudate.—*B. & Br. Ann. N.H. no.* 886, *t.* 11, *f.* 31.

On *Clematis vitalba*. Batheaston.

Scattered beneath the cuticle, subglobose, collapsed when dry; asci oblong, varying in form according to the pressure of the sporidia; sporidia (·0015 in.) ·035 m.m. long, clavate, triseptate, the upper articulation hyaline, the three following brownish, often containing a globose nucleus, appendage, or fifth articulation hyaline, gradually tapering or constricted near the tip. Very rarely there are four brown articulations.—*B. & Br.*

2681. Sphæria tamaricis. *Grev.* "Tamarisk Sphæria."

Scattered under the epidermis, which is very convex and ruptured in the centre; mouth very short, obtuse, not exserted; sporidia rather dark brown, triseptate, slightly curved.—*Grev. t.* 45. *Eng. Fl.* v. *p.* 270. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 81.

On dead branches of Tamarisk.

Perithecia globoso, slightly depressed, their black colour appearing through the epidermis.—*M.J.B.* Sporidia (·0008 in.) ·02 m.m. long.

2682. Sphæria eustegia. *Cooke.* "Collapsing Willow Sphæria."

Perithecia scattered, subglobose, then depressed; ostiola elevating and piercing the cuticle, at length collapsing, and resembling a *Stegia;* asci cylindrical; sporidia uniseriate, fusoid, mostly triseptate, sometimes with 4 or 5 septa, occasionally one of the cells is transversely divided, pale brown.—*Cooke exs. no.* 387. *Valsa tetratrupha.* var. *simplex*, *Seem. Journ. Bot.* (1866). *t. f.* 20.

On willow twigs.

2683. Sphæria abbreviata. *Cooke.* "Short saccate Sphæria."

Pycnidia.—Perithecia commonly scattered over bleached spots, small, black, and prominent, covered by the epidermis; stylospores elliptical, triseptate, brown, slightly constricted at the septa.—*Hendersonia rosæ*, *Westendorp Bull. De Brux.* ii. *no.* 9. *Cooke Seem. Journ.* (1866). *no.* 36.

Ascophore.—Perithecia minute, in short parallel lines, convex, papillate, at length perforated; asci short, broadly elliptic; sporidia crowded, oblong, triseptate, torulose, brown.—*Cooke Seem. Journ.* (1866) iv. *t.* 45, *f.* 6.

On dead stems of bramble. Jan.—April.

Forming distinct, and visible, short parallel lines, but not confluent; asci very short and broad, elliptical, pyriform or obovate; sporidia crowded together, oblong, triseptate, slightly torulose, pale brown when mature; the linear disposition of the perithecia forming short lines of black dots, and the short, broad nearly obovate asci are very characteristic. The stylosporous form often accompanies the ascigerous.

†† *Herbicolæ.*

2684. Sphæria tomicum. *Lev.* "Brown-spored Grass Sphæria."

Perithecia scattered, innate, flattened at the base, black, seated beneath the shining blackened cuticle; ostiola erumpent, papillate; asci cylindrical; sporidia uniseriate, oval, dark brown, with a nucleus in the centre.—*Lev. Ann. Sc. Nat.* (1848), ix. *p.* 144. *B. & Br. Ann. N.H. no.* 633. *Curr. Linn. Trans.* xxii. *t.* 58, *f.* 87.

On *Aira cæspitosa* and *Juncus*. Jan. Batheaston.

Sporidia (·0004-·0006) ·01-·015 m.m. long.

2685. Sphæria lirella. *Fr.* "Meadow-sweet Sphæria."

Perithecia free, distinct, seriate, when collapsed umbilicate beneath, nestling under a blackish, lanceolate, even, slightly swollen spot of the epidermis.—*Moug. exs. no.* 668. *Fr. El.* ii. *p.* 105. *Cooke exs. no.* 273. *Eng. Fl.* v. *p.* 273. *Berk. exs. no.* 37. *Fckl. exs. no.* 905. *Diaporthe lirella, Fckl. Sym. Myc. p.* 206.

On dry stems of *Spiræa ulmaria.*

Having scarcely the appearance of a Sphæria when viewed externally, but when the epidermis is removed the free distinct perithecia, hollowed out at the base, immediately become visible.—*M.J.B.*

2686. Sphæria acus. *Blox.* "Dock stem Sphæria."

Perithecia small, subglobose, flattened, concealed by the epidermis, piercing it with the sharp pointed ostiola; sporidia biseriate, or crowded, colourless, narrowly cylindrical, with rounded ends or acuminate and almond-shaped.—*Curr. Linn. Trans.* xxii. *p.* 325, *t.* 58, *f.* 93.

On dock.

Sporidia (·0003-·0004 in.) ·0075-·01 m.m. long; endochrome 2-4 partite.

2687. Sphæria maculans. *Sow.* "Spot Sphæria."

Spots orbicular, few, grey; perithecia scattered, subglobose; ostiola punctiform; sporidia oblong, elongated, curved, 6-7 septate.—*B. & Br. Ann. N.H. no.* 641*. *Sow. t.* 394, *f.* 9 *(not Desm. exs. no.* 1784*).*

On *Scirpus lacustris.*

Considered in Eng. Fl. as a variety of *S. scirpicola*, but separated on account of its external appearance, and by the sporidia being very much longer and with more than twice the number of septa.

2688. Sphæria hyphenis. *Cooke.* "Hyphen Fern Sphæria."

Forming short parallel lines; perithecia minute, subglobose, raising and at length cracking the cuticle, black, in short lines; ostiola acute, sometimes piercing the cuticle; sporidia biseriate, or clustered, elliptic, uniseptate, slightly constricted, the upper cell somewhat swollen, hyaline.

On stems of *Pteris aquilina*. May. Shere. (Dr. C.)

Easily confounded with small forms of *Dothidea filicina*, but the lines are less distinct, and, on removing the cuticle the perithecia are decided. Quite distinct from *S. pantherina*, to which it is allied.

2689. Sphæria pantherina. *Berk.* "Panther-spot Sphæria."

Spot-like, bounded by a flexuous, subelliptic line; perithecia immersed, furnished with a long neck and slightly prominent ostiolum; asci lanceolate; sporidia oblong, subfusiform, with two or more obscure septa.—*Berk. exs. no.* 34. *Mag. Zool. & Bot. no.* 23.

On *Pteris aquilina*.

At first sight resembling *S. pardalota*. It differs, however, in the immersed perithecia and the elongated neck. The line is not always visible externally, but it may always be found on making a transverse section, being in fact the edge of a true conceptaculum. When the line is visible externally the cuticle is nearly unaltered, when, on the contrary, it is obscure the cuticle has a brown burnt appearance.—*M. J. B.*

The stylospores of this species are fusiform and extremely narrow, ·0008-·001 in. long (see *Curr. Linn. Trans.* xxii. *p.* 285).

2690. Sphæria pardalota. *Mont.* "Leopard-spot Sphæria."

Spot-like, limited by a flexuous line, covered by the cinereous cuticle; perithecia scattered, hemisphærico-compressed, black; stroma cinereous, incumbent, soon rimosely erumpent; asci clavate; sporidia fusiform, biseptate.—*Mont. Ann. Sc. Nat.* i. *p.* 304, *t.* 12, *f.* 1. *Berk. exs. no.* 175. *Fckl. exs. no.* 1575. *Mag. Zool. & Bot. no.* 99. *Diaporthe pardalota, Fckl. Sym. Myc. p.* 206.

On dead stems of *Convallaria multiflora*.

The stylospores of this species are colourless, rather narrowly elliptical (·0002-·0004 in.) ·005-·01 m.m. long (see *Curr. Linn. Trans.* xxii. *p.* 285).

2691. Sphæria ceuthosporoides. *Berk.* "Two-faced Sphæria."

Stroma formed of the parenchyma of the matrix, suborbicular, reddish-brown, circumscribed by a narrow distinct black line penetrating the leaf; perithecia 6-10 scattered, covered, projecting on either surface, their apices seated on the upper surface of

the leaf, which is at length pierced with minute round orifices ; asci oblong, distinct, containing several oblong, septate sporidia. *Berk. Eng. Fl.* v. *p.* 258. *Ann. N.H. no.* 179.

On leaves of cherry laurel. Aug. Near Edinburgh.

Spots 1½-2½ lines broad, completely penetrating the leaf so as to present nearly the same appearance on either side. Perithecia apparently epiphyllous, but projecting almost equally on both surfaces of the stroma.—*M.J.B.*

c. Caulicolæ.

Perithecia at first covered, at length naked by the falling away of the epidermis. On herbaceous stems.—*Fr. S.M.* ii. *p.* 322.

A. Sporidia multicellular=(*Pleospora, Rabh.*)

2692. Sphæria herbarum. *Pers.* " Common herbaceous Sphæria."

Conidia.—Tufts effused, soft, dense, green, then olive-black ; flocci collapsing, pellucid, as well as the olivaceous, at length uniseptate conidia.—*Cladosporium herbarum, Link. sp.* 1, *p.* 39. *Eng. Fl.* v. *p.* 338. (See no. 1744, ante.)

Macroconidia.—Flocci suberect, delicate, fugacious, slightly branched ; macroconidia clavate, at length subrectangular, multiseptate, constricted.—*Macrosporium sarcinula, B. & Br. Ann. N.H. no.* 125, *t.* 8, *f.* 10. (See no. 1731, ante.)

Pycnidia.—Stylospores very minute, oblong, pale vinous red, discharged in slender tendrils.—*Myxosporium orbiculare, Berk. Outl. p.* 325. *Cytispora orbicularis, B. Ann. N.H. no.* 106, *t.* 7, *f.* 6. (See no. 1407, ante.) On gourds.

Stylospores.—Perithecia numerous, small, subrotund, brown ; ostiola poriform ; stylospores oval, hyaline, with one or two sporules.—*Phoma herbarum, West. Act. Belg.* xix. *p.* 118. *Rabh. F. E. no.* 455.

Ascophore.—Subgregarious, minute, black ; perithecia generally covered, globoso-depressed, even ; ostiolum slightly prominent, punctiform ; sporidia oblong-elliptic, yellow, then brown, multicellular.—*Pers. Syn. p.* 79. *Fr. S.M.* ii. *p.* 511. *Berk. exs. no.* 267. *Fries. exs. no.* 38. *Eng. Fl.* v. *p.* 276. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 138. *Pleospora herbarum, Rabh. F.E. no.* 145. *Tul. Carp.* ii. *p.* 262, *t.* 32. *Fckl. exs. no.* 811. *Cooke exs. no.* 261.

On herbaceous stems. Common. [United States.]

var. α. **Pisi.** On pea stems. *Sphæria pisi, Sow. t.* 393, *f.* 8. *Eng. Fl.* v. *p.* 275. *Berk. exs. no.* 183. *Curr. Linn. Trans.* xxii. *t.* 60, *f.* 131. *Pleospora pisi, Fckl. Sym. Myc. p.* 131. *Fckl. exs. no.* 899.

var. β. **Scrophulariæ.** On *Scrophularia* stems and capsules. *Sphæria Scrophulariæ, Eng. Fl.* v. *p.* 276. *Pleospora scrophulariæ, Rabh. Cooke exs. no.* 376.

var. γ. **Leguminum.** On pods of beans, vetches, *Colutea*, &c. *Pleospora leguminum, Rabh. exs. no.* 548. *Fckl. exs. no.* 2129.

The sporidia are very variable in size, but we see no reason for splitting up this species in the manner that some authors have proposed.

2693. Sphæria infectoria. *Fckl.* "Straw Pleospora."

Perithecia disposed in lines, rarely solitary, always covered, at length cracking the cuticle, minute, globose, black, staining the straw; asci cylindrical, stipitate; sporidia uniseriate, ovate-oblong, obtuse, five-septate, and muriform, slightly constricted, yellowish.—*Pleospora infectoria, Fckl. Sym. Myc. p.* 132, *t.* 3, *f.* 23, *Fckl. exs. no.* 2246. *Pleospora culmorum, Cooke MSS.*

On straw of *Ammophila arundinacea.* May. Shere. (Dr. Capron.)

Sporidia (·0008-·001 in.) ·02-·025 m.m. long.

B. Sporidia coloured, not muriform.

2694. Sphæria lunariæ. *B. & Br.* "Honesty Sphæria."

Gregarious; peritheeia black, subglobose; ostiola papillæform, soon piercing the cuticle; asci linear; sporidia biseriate, oblong, triseptate.—*B. & Br. Ann. N.H. no.* 892, *t.* 11, *f.* 36.

On dried pods of *Lunaria rediviva.*

Gregarious, minute, black, subglobose, piercing the cuticle by the papillæform ostiolum; asci short, linear, obtuse; sporidia (·001 in.) ·025 m.m. long, biseriate, oblong, acute or obtuse, very slightly curved, triseptate, articulation slightly torulose.—*B. & Br.*

2695. Sphæria Clivensis. *B. & Br.* "Brown spored herb Sphæria."

Covered, subglobose; ostiola minute, perforating; asci elongato-clavate; sporidia oblong, curved, slightly, obtuse at either end, triseptate, brown.—*B. & Br. Ann. N.H. no.* 643, *t.* 11, *f.* 29. *Cooke exs. no.* 386. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 136.

On dead stems of parsnips, &c. July.

Entirely covered, with the exception of the minute ostiolum, which penetrates the cuticle. Perithecia subglobose; asci clavate, elongated; sporidia biseriate, oblong, slightly curved, very obtuse triseptate, sometimes constricted at the articulations, dark brown. Allied to *S. herbarum*, but with different fruit.—*B. & Br.*

Sporidia (·0006-·0008 in.) ·015-·02 m.m. long.

2696. Sphæria glæospora. *B. & Curr.* "Wormwood Sphæria."

Perithecia globose, depressed, growing beneath the cuticle; ostiola papillæform; sporidia oblong-cymbiform, quadriseptate, articulations torulose.—*Ann. N.H. no.* 980, *t.* 17. *f.* 33.

On dead stems of *Artemisia absinthium*. Fleetwood.

Perithecia subcuticular; ostiola papillæform, black; asci clavate; sporidia (·001-·0012 in.) ·025-·03 m.m., biseriate, quadriseptate, oblong, somewhat cymbiform, joints swollen, endochrome of a pale golden-brown.—*B. & Br.*

2697. Sphæria tenebrosa. *B. & Br.* "Burdock Sphæria."

Scattered, covered by the cuticle and subjacent cells; perithecia depressed; asci large, cylindrico-clavate; sporidia brown, bipartite, articulations [illegible] subconic, with two endochromes.—*B. & Br. Ann. N.H. no.* 649, *t.* 12, *f.* 35.

On dead stems of *Arctium*, which are blackened thereby. May. King's Cliffe.

Perithecia scattered, irregularly covered by the cuticle and subjacent cells, which are traversed by dark, cellular mycelium, which here and there gives rise to short toruloid threads. Asci large, cylindrical, obtuse, slight, attenuated below. Sporidia biseriate, composd of two apposed irregular cones, which contain at first a single large globule, but at length have two irregular endochromes. Remarkable for its curious mycelium and large sporidia.

2698. Sphæria palustris. *B. & Br.* "Tailed spore Sphæria."

Covered; perithecia globose; ostiola minute, papillæform, at length opening with a round aperture; asci linear; sporidia elliptic, slightly curved, uniseptate, appendiculate at either end.—*B. & Br. Ann. N.H. no.* 654, *t.* 12, *f.* 39.

On dead leaves of *Iris*, *Carex*, &c. Dec.

Scattered, completely covered by the cuticle, globose at first, with a minute papillæform ostiolum, at length opening with a regular round aperture, the edges of which adhere closely to the matrix. Asci linear; sporidia uniseriate, or rarely biseriate, from slipping over each other, cymbiform, brown, uniseptate, furnished at either end with a hyaline appendage, rather shorter than the joints, at length ejected, and forming a brown border to the ostiolum. Sometimes the two cells of the sporidia appear like two apposed cones.—*B. & Br.*

2699. Sphæria phæosticta. *Berk.* "Dark spored sedge Sphæria."

Gregarious; perithecia globose, black, covered with the browned epidermis; ostiola rather prominent, punctiform; asci linear; sporidia very dark brown, subcymbiform.—*Berk. Antarct, Fl. Crypt. p.* 59, *t.* 68, *f.* 4. *B. & Br. Ann. N.H. no.* 651, *t.* 12, *f.* 38. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 127.

On *Carex pendula.*

The sporidia are brown (·0004 in.) ·01 m.m. long. Perithecia minute, punctiform, seated beneath small brown spots, which are distinctly visible to the naked eye. Asci at first short, and the sporidia pellucid, at length the asci become linear, and the sporidia brown, with a large globose nucleus, rarely a septum is formed after the sporidia have acquired their colour.

c. Sporidia linear, hyaline=*(Raphidospora, De Not.)*

2700. Sphæria rubella. *Pers.* "Red spot Sphæria."

Scattered; perithecia erumpent, sub-depressed, at length black; surrounded by a red stain; ostiolum conic; sporidia filiform, length of the ascus, colourless, or yellowish.—*Pers. Syn p.* 63. *Nees. f.* 353. *Berk. exs. no.* 252. *Cooke exs. no.* 274. *Fr. S.M.* ii. *p.* 506. *Fries exs. no.* 240. *Fckl. exs. no.* 787. *Eng. Fl.* v. *p.* 274. *Tode f.* 72. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 136. *Raphidospora rubella, Fckl. Sym. Myc. p.* 135. *Leptospora rubella, Rabh. exs. no.* 532.

On herbaceous stems. Common. [Low. & Mid. Carolina.]

Easily known by the reddish or purple spot which covers the portion of the stem on which the sphæria is produced, and which sometimes stains the perithecia. Sporidia (·007-·008 in.) ·177-·2 m.m. long.

2701. Sphæria urticæ. *Rabh.* "Nettle Sphæria."

Perithecia scattered, or aggregated, black, covered by the cuticle; ostiola erumpent, pierced, gaping; asci cylindrical, straight or curved; sporidia the length of the ascus, filiform, articulated, yellowish.—*Rhaphidospora urticæ, Rabh. exs. no.* 745. *Fckl. exs. no.* 1759. *Fckl. Sym. Myc. p.* 125.

On nettle stems. Shere. (Dr. Capron.)

The mouth of the perithecium is large and open, looking like a minute *Peziza*. There are no red spots, as in *S. rubella*, which the fruit resembles, but the perithecia differ considerably. Sporidia (·008 in.) ·2 m.m. long.

2702. Sphæria acuminata. *Sow.* "Thistle Sphæria."

Gregarious; perithecia sub-immersed, ovate, black; ostiola erumpent, conical, acute; sporidia linear, very long, at length

multiseptate.—*Fr. S.M.* ii. *p.* 506. *Berk. Ann. N.H. no.* 189, 639*, *t.* 11, *f.* 26. *Sow. t.* 394, *f.* 3. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 133. *Cooke exs. no.* 264. *Sphœria carduorum, Wallr. Fl. Germ.* iv. *p.* 805. *Rhaphidospora carduorum, Tul. Carp.* ii. *p.* 256. *Fckl. Sym. Myc. p.* 125. *Fckl. exs. no.* 786. *Rhaphidospora disseminans, Fckl. exs. no.* 780. *Ophiobolus disseminans, Reiss. Hedw.* 1854, *no.* 6.

On thistles and burdock. Common. [Up. & Mid. Carolina.]

The sporidia at first contain numerous nuclei without articulations, later, however, the articulations are very manifest, about twenty. One articulation swollen, usually the second.

2703. Sphæria ulnaspora. *Cooke.* "Bent-spored nettle Sphæria."

Fig. 396.

Perithecia scattered, covered by the cuticle, depressed, black; mouth large, piercing the cuticle; asci cylindrical; sporidia linear, length of the ascus, unequally triseptate and constricted; joints becoming 2-3 or more septate, without constriction, bent angularly when free, twisted in the ascus, hyaline, yellowish.

On nettle stems. Shere.

The perithecia are large and flattened, after the manner of *S. doliolum*, covered by the cuticle, through which they are visible when moist, scarcely when dry. The sporidia are very curious, being twisted near the apex of the ascus, when free they are bent angularly, like a knee joint, with two or three constricted septa at unequal distances. Quite distinct from the fruit *S. acum inata*, and very different from that of *S. coniformis*.
(Fig. 396, *sporidium.)*

2704. Sphæria herpotricha. *Fr.* "Hairy Grass Sphæria."

Scattered; perithecia free, subconical, black, covered with decumbent brown hairs; ostiolum subpapillæform; asci long, clavate; sporidia acicular, very long, containing numerous sporules.—*Fr. S.M.* ii. *p.* 504. *Fries. exs. no.* 52. *Rhaphidospora herpotricha, Tul. Carp.* ii. *p.* 255. *Fckl. Sym. Myc. p.* 125. *Rhaphidospora Lacroixii, Mont. Syll. p.* 251. *Fckl. exs. no.* 781.

On dead grass stems, and on *Carices*.

Sporidia probably at length multiseptate. The hairs of the perithecia on *Carices* are rigid and erect, but the species is evidently the same.

2705. Sphæria eucrypta. *B. & Br.* "Hidden Sedge Sphæria."

Covered; perithecia ovate, delicate, springing from scattered, branched threads; neck very short; asci clavate; sporidia linear-fusiform, with several irregular endochromes.—*B. & Br. Ann. N.H. no.* 652, *t.* 12, *f.* 40.

On leaves of *Carex pendula*. Jan. Batheaston.

Scarcely visible unless the leaf is held up to the light. Perithecia delicate, ovate, with a very short neck and round aperture, like a little India rubber bottle, springing from threads which are mostly branched at right angles. Asci very delicate, clavate. Sporidia (·05 in.) ·127 m.m., linear-fusiform, with several endochromes, varying much in size. This species is very liable to be overlooked unless the leaves chance to be saturated with moisture.—*B. & Br.*

2706. Sphæria helicospora. *B. & Br.* "Spiral spored Sphæria."

Covered; perithecia subglobose; asci clavate; sporidia linear, very long, spirally involute.—*B. & Br. Ann. N.H. no.* 653.

On leaves of *Cyperaceæ*. West of England.

Distinguished by its extremely long spirally disposed sporidia, which resemble those of *Hysterium apiculatum*.—*B. & Br.*

2707. Sphæria cariceti. *B. & Br.* "Long-spored grass Sphæria."

Perithecia subglobose, immersed, minute; ostiola punctiform; asci clavate; sporidia biseriate, linear, curved, acute at each extremity.—*B. & Br. Ann. N.H. no.* 983, *t.* 17, *f.* 35.

In marshy ground, on *Aira cæspitosa*. Dec.

Sporidia (·003-·004 in.) ·075-·1 m.m. long.

D. Sporidia fusiform multiseptate=(*Leptosphæria, De Not.*)

2708. Sphæria acuta. *Moug.* "Cone-shaped Sphæria."

Spermogonia.—Subgregarious; peritheeia subglobose, even, black, shining; ostiolum beaked, straight, cylindrical, obtuse; spermatia minute, hyaline, simple.—*Sphæria acuta, Fries. exs. no.* 118. *Eng. Fl.* v. *p.* 274. *Aposphæria acuta, Berk. Outl. p.* 315.

Ascophore.—Scattered; peritheeia conical, even, shining, black; ostiola thick, confluent, obtuse, pierced; sporidia biseriate, yellow, slightly curved, 5-11 septate.—*Moug. exs. no.*

181. *Fckl. exs. no.* 900. *Cooke exs. no.* 265. *Sphœria coniformis, Fr. S.M.* ii. *p.* 508. *Berk. Ann. N.H. no.* 190. *Grev. t.* 239, *f.* 1. *Curr. Linn. Trans.* xxii. *t.* 59. *f.* 126. *De Not. Schema, p.* 48 (not *Fckl. Sym. Myc. p.* 136.) *Fckl. exs. no.* 2163. *Pleospora acuta, Fckl. Sym. Myc. p.* 135.

On nettle stems. Common. [Mid. & Up. Carolina.]

2709. Sphæria pellita. *Fr.* "Bearded Herb Sphæria."

Conidia.—Tufts broadly expanded, dark brown, branches divergent, short; conidia oblong, septate, hyaline, smooth.—*Brachycladium penicillatum, Corda. Ic.* ii. *t.* 10, *f.* 63. *Fckl. exs. no.* 57.

Ascophore.—Gregarious; perithecia conico-rotund, black, encircled with hairs of the same colour; ostiola papillæform; asci clavate; sporidia crowded, multiseptate, fusiform, yellow, with a swollen joint (3rd or 4th).—*Fr. S.M.* ii. *p.* 503. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 129. *Pleospora pellita, Tul. Carp.* ii. *p.* 268, *t.* 31, *f.* 10-13. *Rabh. exs. no.* 749.

On dead herbaceous stems.

Sporidia (·0015-·0016 in.) ·035-·04 m.m.

2710. Sphæria doliolum. *Pers.* "Constricted Sphæria."

Conidia.—Said to be *Periconia byssoides, Pers. Syn. p.* 686. *Fckl. exs. no.* 1626.

Spermogonia.—Mixed with the ascophores; spermatia minute, hyaline.—*Sphœria suffulta, Nees. Fckl. exs. no.* 898.

Ascophore.—Scattered; perithecia conico-rotund, papillary, black, shining, folded concentrically; sporidia biseriate, yellowish, slightly curved, 3-5 septate, constricted.—*Pers. Ic. & Desc. t.* 10, *f.* 5, 6. *Moug. exs. no.* 571. *Fckl. exs. no.* 901. *Eng. Fl.* v. *p.* 275. *Fr. S.M.* ii. *p.* 509. *Fries. exs. no.* 321. *Berk. exs. no.* 290. *Curr. Linn. Trans.* xxii. *p.* 329, xxv. *p.* 259 *Cryptosphœria doliolum, Grev. t.* 239, *f.* 2. *Baxt. exs. no.* 31. *Pleospora doliolum, Tul. Carp.* ii. *p.* 276. *Fckl. Sym. Myc. p.* 135. *Leptosphœria doliolum, De Not. Schema, p.* 61.

On herbaceous stems. [United States.]

var. **conoidea.** Perithecia conical, truncate; sporidia curved, triseptate.—*De Not. Micro. Ital. dec.* ix. *f.* 7. *Sphœria Helenæ, Curr. Linn. Trans.* xxii. *t.* 59, *f.* 137.

On herbaceous stems.

Sporidia ('001 in.) ·025 m.m. long. In an authentic specimen of Persoon's the sporidia are triseptate, and slightly constricted (F.C.). The second joint of the sporidia in the typical form is sometimes swollen.

2711. Sphæria agnita. *Desm.* "Hemp Agrimony Sphæria."

Scattered, crumpent, soon naked; perithecia minute, subglobose, flattened at the base, black, somewhat shining, seated on an effused, greyish spot; ostiola papillæform, pierced; asci elongated, stipitate; sporidia fusiform, 5-6 septate, constricted at the middle, pale yellow.—*Desm. Ann. Sc. Nat.* 1851, xvi. *p.* 313. *Desm. exs. no.* 713. *Fckl. exs. no.* 888. *Cooke exs. no.* 277. *Pleospora agnita, Fckl. Sym. Myc. p.* 135. *Leptosphæria agnita, De Not. Schema. p.* 61.

On stems of *Eupatorium cannabinum.*

2712. Sphæria alliariæ. *Awd.* "Blackened Sphæria."

Pycnidia.—Gregarious; perithecia irregular, convex, soon depressed and concave, rugose, black; stylospores small, oblong, with a sporule at each extremity.—*Phoma lingam, Desm. Ann. S.N.* xi. *p.* 281. *Tode.* ii. *p.* 51, *f.* 46. *Desm. exs. no.* 1877. See ante no. 1213.

Ascophore.—Perithecia scattered over an indeterminate, blackened spot, at length free, obtuse, black; ostiola minute; asci somewhat clavate (nearly cylindrical); sporidia fusiform, slightly curved, 3-5 septate, the middle dissepiment often a little constricted.—*Rabh. exs. no.* 261. *Cooke Seem. Journ.* 1866. *f.* 19. *Sphæria maculans, Desm. Ann. Sc. Nat.* vi. 1846, *p.* 77. *Fckl. exs. no.* 1793. *Pleospora maculans, Tul. Carp.* ii. *p.* 274. *Fckl. Sym. Myc. p.* 135. *Leptosphæria maculans, De Not. Schema. p.* 61.

On stems of *Erysimum alliaria,* &c.

The specific name of *Alliariæ* is retained, instead of *maculans,* previously applied by Desmazieres, to prevent confusion with the *S. maculans* of Sowerby.

2713. Sphæria complanata. *Tode.* "Flattened Sphæria."

Spermogonia.—Scattered; perithecia as in ascophore; spermatia minute, hyaline, simple.—*Aposphæria complanata, Berk. Outl. p.* 315.

Ascophore.—Scattered; perithecia sub-globose, even, black, soon collapsed, and then plano-depressed; ostiolum papillæform, persistent; asci cylindrical; sporidia subfusiform, curved, mul-

tiseptate, the second joint swollen.—*Tode. f.* 88. *Fr. S.M.* ii. *p.* 508. *Fr. exs. no.* 36. *Eng. Fl.* v. *p.* 275. *B. & Br. Ann. N.H. no.* 644. *Leptosphæria complanata. De Not. Schema, p.* 62.

On herbaceous stems. [Up. & Mid. Carolina.]

Very variable in size.

2714. Sphæria derasa. *B. & Br.* "Ragwort Sphæria."

Gregarious, small, black, hemispherical, covered with rigid black hairs, which ultimately disappear—except at the base; asci clavate; sporidia biseriate, fusiform-filiform, slightly curved, with a row of nuclei, at length faintly septate.—*B. & Br. Ann. no.* 639*, *t.* xi. *f.* 25, *b. S. calva, Johnst. Fl. Berw.*

On ragwort stems. Spring.

One of the articulations of the sporidia is sometimes swollen.

2715. Sphæria vectis. *B. & Br.* "Iris Sphæria."

Subcuticular; ostiola at length naked; asci short, cylindrical; sporidia oblong, 5 septate, the fourth articulation swollen.—*B. & Br. Ann. N.H. no.* 779, *t.* 16, *f.* 16. *Leptosphæria vectis, De Not. Schema p.* 62.

On dead leaves of *Iris fœtidissima.*

Covered by the cuticle, which is at length pierced by the black ostiolum, sometimes regularly diffused, sometimes forming little pale patches; asci short, curved, cylindrical; sporidia oblong (·0001 in.) ·0025 m.m. long, 5-septate, the fourth joint being much swollen.—*B. & Br.*

2716. Sphæria nigrans. *Desm.* "Black Grass Sphæria."

Minute, scattered, covered with the blackened epidermis; perithecia globose or subelliptic, depressed, base invested with brownish hairs; ostiola erumpent, papillæform; asci clavate; sporidia fusiform, curved, subhyaline, 5-septate.—*Desm. Ann. Sc. Nat.* 1846. *Exs. no.* 1774. *B. & Br. Ann. N.H. no.* 640, *t.* 11, *f.* 27. *Leptosphæria nigrans, De Not. Schema p.* 61.

On *Dactylis glomerata.* Feb.

In a certain stage of growth the black stroma-like spots are not visible, but there are merely a few creeping flocci at the base of the perithecia, these gradually increase in number, so as at length to form a thin dark stratum. The species may be recognised in any state by the fusiform spores, the middle joint of which is swollen. Besides the true paraphyses there are jointed threads in the perithecia.—*B. & Br.*

2717. Sphæria Ogilviensis. *B. & Br.* " Ogilvie's Ragwort Sphæria."

Covered; perithecia depressed; ostiola papillæform; asci clavate; sporidia fusiform, bipartite, three endochromes in each cell. —*B. & Br. Ann. N.H. no.* 642, *t.* 11, *f.* 28. *Leptosphæria Ogilviensis, De Not. Schema, p.* 61.

On stems of *Senecio Jacobæa.* Dundee. [Up. Carolina?]

Perithecia scattered, covered by the cuticle, depressed, with a decided, obtuse, papillæform ostiolum; asci clavate; sporidia biseriate, fusiform, consisting of two apposed cones, the sides of which are slightly hollowed out, each division containing three endochromes. Externally it resembles *S. herbarum.—B. & Br.*

2718. Sphæria modesta. *Desm.* " Figwort Sphæria."

Scattered; perithecia globoso-depressed, minute, at first covered with the epidermis, then naked, black, short, shining; ostiola papillate, obtuse; asci large, clavate; sporidia fusiform, rather obtuse, curved, 4-6 septate, third joint swollen.—*Desm. exs. no.* 1786. *B. & Br. Ann. N.H. no.* 644, *t.* 11, *f.* 30. *Lib. exs. no.* 244.

On dead stems of *Scrophularia.* May. Glen Isla.

The peculiar character is the swelling out of the third joint of the curved, multiseptate, subfusiform sporidia. Asci clavate and not cylindrical as in *S. complanata.*

2719. Sphæria sabuletorum. *B. & Br.* " Large-spored Grass Sphæria."

Scattered, covered; perithecia subglobose, at length collapsed; ostiola pierced; asci large, cylindrical; sporidia fusiform, nodulose.—*B. & Br. Ann. N.H. no.* 650, *t.* 12, *f.* 36.

On dead leaves of *Ammophila arundinacea.* May. Sands of Barrie.

Perithecia scattered, concealed, with the exception of the pertused ostiolum, subglobose, at length collapsed; asci large, rather short, cylindrical, very obtuse; sporidia at first globose or obovate, uniseptate, eventually one joint produces three endochromes, and the other four, the fourth being seated in the centre of the compound fusiform sporidium, and much larger than the rest. There is a constriction between each endochrome.—*B. & Br.*

2720. Sphæria tritorulosa. *B. & Br.* " Willow Herb Sphæria."

Subcuticular, semi-immersed, subglobose; ostiola papillæform; asci elongated; sporidia tritorulose.—*Ann. N.H. no.* 778, *t.* 16, *f.* 15. *Leptosphæria tritorulosa, De Not. Schema, p.* 62.

On dead stems of *Epilobium hirsutum*.

At first covered by the cuticle, then exposed, half immersed; perithecia subglobose, with a papillæform ostiolum; asci cylindrical; sporidia oblong (·0006·0007 in.) ·015-·017 m.m. long, containing three nuclei, and with two constrictions.

2721. Sphæria triglochinicola. *Curr.* "Triglochin Sphæria."

Perithecia minute, subglobose, situate beneath the epidermis, which is pierced by the papillate ostiolum; sporidia biseriate, trisceptate, oblong in a front row, curved in a side view, constricted at the septa, yellow.—*Curr. Linn. Trans.* xxiv. *p.* 158, *t.* 25, *f.* 15. *B. & Br. Ann. N.H. no.* 1100.

On carpels and stems of *Triglochin palustre*. Oct. Near Ringmer, Sussex.

Sporidia (·0015 in.) ·035 m.m. long, varying slightly.

2722. Sphæria Thwaitesii. *B. & Br.* "Thwaites's Sphæria."

Perithecia minute, convex, flattened at the base, mycelium of very delicate æruginous threads traversing the matrix; asci cylindrical; sporidia oblong-clavate, slightly curved, obtuse, with four endochromes.—*B. & Br. Ann. N.H. no.* 646, *t.* 11, *f.* 32.

On stems of *Umbelliferæ*. Jan. Bristol.

Perithecia minute, convex above, flattened below, arranged in short lines, seated on the woody fibres, which are traversed and covered with very delicate anastomosing veidigris green threads; asci cylindrical or subclavate, rather short; sporidia biseriate, oblongo-clavate, obtuse at either extremity, slightly curved, containing about four endochromes; in some instances naked, oblong, slightly curved spores, with five endochromes, the gelatinous mass having a pale sea-green tint.—*B. & Br.*

2723. Sphæria echinella. *Cooke.* "Hedgehog Sphæria."

Gregarious, subcuticular; perithecia globose, black, covered with short, rigid black hairs slightly raising, and piercing the cuticle; ostiola obtuse; asci cylindrical; sporidia uniseriate, straight or slightly curved, trisceptate, constricted, pale-brown.—*Cooke exs. no.* 267.

On stems of *Atriplex*, &c. Kentish Town.

The perithecia often become exposed by the shelling off of the cuticle, collected in patches of two or three inches in length, but not crowded; wholly or partially surrounding the stem; the cuticle is slightly raised, and punctate with the black ostiola. Sporidia closely resembling those of *S. puleispyrius*.

E. Sporidia simple, or uniseptate, hyaline.

2724. Sphæria curvirostra. *Sow.* "Curved-beak Sphæria."

Gregarious; perithecia covered, ovate, black; ostiola erumpent, equal, smooth, oblique.—*Sow. t.* 373, *f.* 5. *Fr. S.M.* ii. *p.* 507.

On stems of *Umbelliferæ*.

"This is very minute, its spherulæ are imbedded in the plant on which they grow. The mouth is in length nearly twice the diameter of the spherule, standing obliquely."—*Sowerby.*

2725. Sphæria rostellata. *Fr.* "Clustered-beak Sphæria."

Gregarious, black; perithecia covered, subrotund, at length depressed above; ostiola erumpent, cylindrical, or slightly attenuated; asci oblong; sporidia biseriate, oblong, curved, with four nuclei, hyaline.—*Fr. S.M.* ii. *p.* 476. *Fr. Obs.* i. *t.* 3, *f.* 3. *Eng. Fl.* v. *p.* 267. *Fckl. exs. no.* 920. *Diaporthe rostellata*, *Nke. Pyr. Germ. p.* 298. *Fckl. Sym. Myc. p.* 208.

On branches of rose and bramble.

Minute, growing beneath the epidermis, and having much the habit of *S. acuta (coniformis).*

2726. Sphæria cruciferarum. *Desm.* "Crucifer Sphæria."

Scattered; perithecia innate, hemispherical, turgid, even, black, shining; ostiola simple, pierced; asci shortly clavate; sporidia clustered, long-elliptic, uniseptate, hyaline.—*Fr. S.M.* ii. *p.* 525. *Desm. exs. no.* 985. *Berk. Ann. N.H. no.* 191.

On *Erysimum officinale.*

2727. Sphæria superflua. *Awd.* "Clouded Sphæria."

Spermogonia.—Perithecia half the size of the ascophores; spermatia very numerous, cylindrical, curved, minute.

Ascophore.—Perithecia black, covered by the epidermis; subglobose, pierced, scattered, very numerous; asci fasciculate, oblong, curved; sporidia biseriate, oblong, uniseptate, hyaline.—*Fckl. exs. no.* 884. *Sphærella superflua*, *Fckl. Sym. Myc. p.* 102. *Sphæria nebulosa*, *Schm. & Kze. exs. no.* 54?

On nettle stems. Shere. (Dr. Capron.)

2728. Sphæria nigrella. *Fr.* "Spotted Angelica Sphæria."

Perithecia subglobose, even, umbilicate, perforated, black, nestling in determinate elongated black spots; sporidia biseriate,

colourless, fusiform; endochrome bipartite.—*Fr. Obs.* i. *t.* 4, *f.* 2. *B. & Br. Ann. N. H. no.* 649*. *Fr. S.M.* ii. *p.* 512. *Curr. Linn. Trans.* xxii *t.* 60, *f.* 130. *Cooke exs. no.* 393.

On *Angelica sylvestris.* [Mid. Carolina.]

Sporidia (·0008 in.) ·02 m.m. long.

2729. Sphæria planiuscula. *B. & Br.* "Flattened Sphæria."

Scattered, somewhat plane; ostiola obscure; asci clavate; sporidia biseriate, oblong, uniseptate, irregularly thickened in the centre.—*B. & Br. Ann. N.H. no.* 891, *t.* 11, *f.* 35.

On dead herbaceous stems.

Minute, scattered, covered by the cuticle, depressed, with an obscure ostiolum. Asci clavate; sporidia biseriate, oblong, uniseptate, slightly but irregularly swollen at the commissure, the one articulation generally being more swollen than the other (·0006 in.) ·015 m.m. long.—*B. & Br.*

2730. Sphæria commanipula. *B. & Br.* "Capsule Sphæria."

Scattered, at first subglobose, covered, at length denuded, collapsed; ostiola minute; asci cylindrical; sporidia biseriate, short, elliptico-cymbiform, uniseptate.—*B. & Br. Ann. N.H. no.* 645, *t.* 11, *f.* 31.

On capsules of *Scrophularia.* May. Forfarshire.

Scattered, at first covered by the cuticle, subglobose, then exposed and collapsed, with a minute papillæform ostiolum, which is, however, sometimes obscure. Asci cylindrical. Sporidia biseriate, elliptico-cymbiform, uniseptate. Sometimes one of the endochromes is decidedly conical, with a constriction about the centre.—*B. & Br.*

2731. Sphæria tosta. *B. & Br.* "Scorched Sphæria."

Perithecia minute, pallid, depressed, covered by the scorch-brown epidermis; asci linear; sporidia uniseriate, short, elliptico-cymbiform, uniseptate.—*B. & Br. Ann. N.H. no.* 648, *t.* 11, *f.* 34. *Cooke exs. no.* 266.

On dead stems of *Epilobium hirsutum.* Feb.

Perithecia depressed, subglobose, pale, concealed under broad spots which look as if they had been scorched, the part of the cuticle above each perithecium being darker. Asci linear. Sporidia uniseriate, short, elliptico-cymbiform, uniseptate, very pale. With somewhat the habit of *S. tomicum*, but very distinct.—*B. & Br.*

2732. Sphæria pinodes. *B. & Blox.* "Pea-stem Sphæria."

Scattered, very minute, sub-hemispherical, depressed, astomous; asci short; sporidia constricted in the middle, uniseptate.—*B. & Br. Ann. N.H. no.* 981, *t.* 17, *f.* 34.

On pea stems. Twyeross.

An obscure species, with scattered, extremely minute, subhemispherical, depressed, mouthless perithecia; asci short; sporidia (·0007 in.) ·0177 m.m. constricted in the middle, uniseptate.—*B. & Br.*

2733. Sphæria corni-sueciæ. *Fr.* "Cornel Sphæria."

Scattered, shining, jet black, depressed; ostiolum obsolete (asci oblong, curved; sporidia oblong-clavate, uniseptate, hyaline) —*Fries. exs. no.* 409. *Sph. corni, Sow. t.* 370, *f.* 5. *Eng. Fl.* v. *p.* 276. *Fckl. exs. no.* 912.

On stems of cornel.

The portion of the stem on which it grows is whitened, and the perithecia which are of a very bright jet black, are almost effused at the base, and often sulcate in the direction of the stem.—*M.J.B.*

Only a *Sphæropsis* (*Curr. Linn. Trans.* xxii. *p.* 330).

2734. Sphæria duplex. *Sow.* "Uncertain Sphærella."

Scattered; perithecia immersed, globose, latent, black; ostiola naked, dilated, hemispherical.—*Sph. duplex, Sow. t.* 375, *f.* 4. *Fr. S.M.* ii. *p.* 520. *Eng. Fl.* v. *p.* 277.

On stems of *Umbelliferæ* and on petioles of *Sparganium*.

An obscure or doubtful species.

d. Foliicolæ.

Perithecia sub-cuticular, innate; ostiola elongated; epiphyllous=*Gnomonia, De Not.*

2735. Sphæria fimbriata. *Pers.* "Fringed-leaf Sphæria."

Spermogonia.—Spermatia very minute, ovate, simple.

Pycnidia.—Stylospores filiform, curved, simple.—*Glœosporium carpini, Desm. Ann. Sc. Nat.* 1853, xx. *p.* 214. *Fckl. exs. no.* 202.

Ascophore.—Covered; perithecia crowded, running together into a black tubercle; ostiola erumpent, spinulose, surrounded at the base with a white fringe-like collar; sporidia colourless, curved, simple.—*Pers. Syn. p.* 36. *Moug. exs. no.* 277. *Eng. Fl.* v. *p.* 257. *Fr. S.M.* ii. *p.* 436. *Fries exs. no.* 242. *Batsch. f.* 182. *Hoffm. V.C. t.* i. *f.* i. *Berk. exs. no.* 36. *Mamiania fimbriata, De Not. Schema, p.* 57. *Gnomonia fimbriata, Fckl. exs. no.* 882. *Cooke exs. no.* 163. *Cooke L.F. no.* 89.

On leaves of hornbeam. Common.

2736. Sphæria coryli. *Batsch.* "Hazel leaf Sphæria."

SPERMOGONIA.—Perithecia scutiform; spermatia curved, or vermicular, linear hyaline.—*Leptothyrium coryli, Fckl. exs. no.* 1716.

ASCOPHORE.—Covered; perithecia distinct, disposed in a circle; ostiola erumpent, spinulose, surrounded with a white, fringe-like collar; sporidia colourless, simple, ovate, attenuated at each extremity.—*Batsch. f.* 231. *Fr. S.M.* ii. 436. *Fries. exs. no.* 201. *Moug. exs. no.* 877. *Grev. t.* 330. *Eng. Fl.* v. *p.* 257. *Fckl. exs. no.* 881. *Mamiania coryli, De Not. Schema, p.* 57. *Gnomonia coryli, Fckl. Sym. Myc. p.* 120.

On living leaves of hazel.

Resembling *S. fimbriata*, but easily distinguished by the distinct perithecia, which are generally disposed in a circle.

2737. Sphæria avellanæ. *Schm.* "Scattered hazel Sphæria."

Scattered, subhemispherical, black, covered with divergent, radiating, greyish-brown hairs; ostiola papillæform, shining-black; asci clavato-cylindrical; sporidia ovate.—*Schm. M.H.* i. *p.* 64. *Berk. exs. no.* 182. *Ann. N.H. no.* 101. *Fr. S.M.* ii. *p.* 515.

On dead hazel leaves.

2738. Sphæria tubæformis. *Tode.* "Alder-leaf Sphæria."

SPERMOGONIA=*Leptothyrium cylindrospermum, Bon. Rabh. F. E. no.* 678.

ASCOPHORE.—Perithecia subglobose, covered, smooth; ostiolum straight, beaked, nearly equal, earthy-tawny; sporidia biseriate or crowded, colourless, elliptical, or subcymbiform.—*Tode f.* 128. *Moug. exs. no.* 280. *Fr. S.M.* ii. *p.* 516. *Fries exs. no.* 26. *Grev. t.* 335, *f.* i. *Eng. Fl.* v. *p.* 277. *Curr. Linn. Trans.* xxii. *t.* 59, *f.* 140. *Ceratostoma tubæforme, De Not. Schema, p* 54. *Gnomonia tubæformis, Fckl. Sym. Myc. p.* 120. *Fckl. exs. no.* 866.

On dead leaves (alder, &c.) [Mid. Carolina.]

Sporidia (·0005 in.) ·0127 m.m. long.

2739. Sphæria gnomon. *Tode.* "Common Beaked Sphæria."

Perithecia black, erumpent, often collapsed; ostiolum elongated, clavate, straight, black; asci stipitate; sporidia crowded, narrowly fusiform, curved, with numerous nucleoli.—*Tode f.* 125.

Sow. t. 373, *f.* 6. *Fr. S.M.* ii. *p.* 517. *Fries exs. no.* 285. *Grev. t.* 335, *f.* 2. *Eng. Fl.* v. *p.* 277. *Purt.* iii. *no.* 1521. *Berk. exs. no.* 38. *Cryptosphæria gnomon, Grev. Fl. ed. p.* 360. *Gnomonia vulgaris, De Not. Schema p.* 58. *Fckl. exs. no.* 867.

On hazel leaves. Winter and early spring.
[Mid. Carolina.]

2740. Sphæria setacea. *Pers.* "Hair-beaked Sphæria."

Pycnidia=*Discosia clypeata, De Not. Fres. Beitr. p.* 68. *Fckl. exs. no.* 453. *Fckl. Sym. Myc. p.* 121, *t.* 2, *f.* 23.

Ascophore.—Perithecia covered, globose; ostiola bristle-like, attenuated, black; sporidia biseriate, colourless or greenish, pointed at each extremity, and often aristate, triseptate when mature.—*Pers. Syn. p.* 62. *Fr. S.M.* ii. *p.* 518. *Fries exs. no.* 286. *Purt. MSS. Johnst. Fl. Berw. Eng. Fl.* v. *p.* 277. *Berk. Outl. p.* 401. *Berk. exs.* 184. *Curr. Linn. Trans. t.* 59, *f.* 145. *Fckl. exs. no.* 871. *Wallr. Fl. Germ. p.* 802. *Gnomonia setacea, De Not. Schema, p.* 58. *Cooke exs. no.* 161.

var. **petiolæ.** On petioles of sycamore, &c.—*Sphæria petioli, Fuckel. exs.* 537. *Enum. Fung. Nass. p.* 68. *De Not. Schema, p.* 49. *Cooke Journ. Bot. Cooke. exs. no.* 162. *Gnomonia Cerastis, Reiss. Gnomonia ischnostyla, Fckl. Sym. Myc. p.* 121.

var. **epiphyllæ.** On leaves of oak, sycamore, maple, &c.—*Sphæria inclinata, Desm. Gnomonia setacea, Fckl. Sym. Myc. p.* 121. *Cooke L.F. no.* 87.

On the petioles, nerves, &c., of the leaves of various trees, especially *Acer pseudoplatanus.* [Mid. Carolina.]

Sporidia (·0006 in.) ·015 m.m. long.

2741. Sphæria ariæ. *D.C.* "Beam-leaf Sphæria."

Pycnidia=*Discosia artocreas, Fr. S. V.S. p.* 423 (*in Sorbo.*)

Ascophore—Scattered, minute; perithecia covered, depressed, sub-latent; ostiolum straight, equal, slender, black; asci and sporidia ?—*D.C. Fl. Fr.* vi. *p.* 131. *Fr S.M.* ii. *p.* 517. *Fckl. exs. no.* 877. *Gnomonia ariæ, Fckl. Sym. Myc. p.* 121.

On leaves of *Pyrus aria.* Darenth.

The specimens found were immature, the sporidia not being formed, so that the characters cannot be given. The fruit seems to be matured during the winter, whilst the leaves lie on the ground, as in allied species.

Gen. **357.** **SPHÆRELLA**, De Not.

Fig. 397.

Peritheeia membranaceous, immersed or semi-immersed, scarcely papillate; sporidia elliptical or oblong, two or more celled, rarely simple, hyaline, pale or colourless.—*De Not. Schema, p.* 62. *Sphæria (Foliicolæ), Fr. (in part), Cooke Brit. Fungi. edit.* 2, *p.* 159.

(*Fig.* 397.)

2742. Sphærella maculæformis. "Patchy Sphærella."

Spermogonia.—Spots minute, rounded, whitish with a brown margin; peritheeia 1-3, very minute, innato-prominent, black, pierced; spermatia elongated, very slender, curved.—*Septoria quercina, Desm. Ann. Sc. Nat.* 1847, viii. 25. *Fckl. exs. no.* 433.

Ascophore.—Peritheeia innate, but slightly prominent, punctiform, globose, black, crowded together into an unequal spot (or scattered); asci small, cylindrical; sporidia uniseriate or biseriate, uniseptate, the lower cell narrower than the upper.—*Cooke Seem. Journ.* 1866, *t.* 49, *f.* 7. *Fckl. exs. no.* 817, 1781, 1782, 1783. *Sphæria maculæformis, Pers. Syn. p.* 90. *Fr. Sys. Myc.* ii. *p.* 524. *Berk. Eng. Fl.* v. *p.* 2, *p.* 278. *Outl. p.* 401. *Sow. t.* 370, *f.* 7. *Berk. exs. no.* 338. *Cooke exs. no.* 170. *Cooke L.F. no.* 83. *Johnst. Fl. Berw.* ii. *p.* 129.

On fallen leaves. Common.

var. β. **æqualis.** Peritheeia cæspitose; sporidia having both cells nearly globose and equal. [United States.]

Sporidia (·0003 in.) ·0075 m.m. long.

2743. Sphærella sparsa. *Awd.* "Scattered Sphærella."

Hypophyllous. Peritheeia black, innate, more or less densely scattered, or somewhat gregarious, globose; asci cylindrical; sporidia biseriate or uniseriate, obovate-oblong, uniseptate, upper cell broadest, constricted, hyaline.—*Awd. Gonn. & Rabh.* v. *p.* 4, *t.* 2, *f.* 27, 22. *Sphæria sparsa, Wallr. p.* 772. *Sphæria corylaria,*

Wallr. p. 770. *Cooke L.F. no.* 88. *Fckl. exs. no.* 847. *Sphærella maculæformis, var. a. centigrana. Seem. Journ. Bot.* (1866) *no.* 1. *Cooke exs. no.* 169.

On chesnut and hazel leaves.

2744. Sphærella salicicola. *Fr.* "Willow-leaf Sphærella."

Maculæform or scattered; perithecia innate, punctiform, globose, black, shining; asci cylindrical; sporidia uniseriate or biseriate, uniseptate, hyaline.—*Sphœria salicicola, Fr. S.M.* ii. *p.*

On leaves of *Salix*. April. Shere. (E.C.)

The perithecia have a very peculiar appearance with their large ostiola. Habit of *S. maculæformis*, but spores twice the size, ·0006 in.

2745. Sphærella cratægi. *Fckl.* "Hawthorn Sphærella."

Hypophyllous. Perithecia scattered, or loosely gregarious, black, innate, subglobose, pierced, asci broadly clavate; sporidia fasciculate, elongated, fusiform, obtuse, hyaline, uniseptate.—*Fckl. exs. no.* 2162. *Gonn. & Rabh. t.* 7, *f.* 94 (imperfect).

On leaves of hawthorn. Shere. (Dr. Capron.)

Auerswald describes the sporidia as entire, whereas, when mature, they are uniseptate; asci (·002 in.) ·05 m.m. long. Sporidia (·0015 in.) ·04 m.m. long.

2746. Sphærella oblivia. *Cooke.* "Chestnut Sphærella."

Spermogonia.—Perithecia brownish-black, minute, numerous; spermatia elongated, linear, oozing out in flesh coloured tendrils. —*Septoria castanæcola, Desm.* (See no. 1337, ante.)

Ascophore.—Perithecia semi-innate, black, closely agglomerated in small but dense maculæform spots consisting of from ten to twenty individuals; asci cylindrical; sporidia biseriate, curved, uniseptate, the lower cell the narrowest, slightly yellow.—*Cooke Seem. Journ.* (1866) *t.* 49, *f.* 8. *S. maculæformis* (partly) *Gonn. & Rabh.* v. *t.* 1, *f.* 7.

On the under surface of dead chestnut leaves, mixed with *S. maculæformis*. Darenth Wood, Kent.

Sporidia (·0005-·0006 in.) ·0125-·015 m.m. long.

2747. Sphærella arcana. *Cooke.* "Hidden Sphærella."

Perithecia minute, subinnate, either collected in "maculæform" spots or scattered, black and shining; asci broadly fusiform; sporidia crowded, linear, straight, obtuse at the extremi-

ties, uniseptate, each cell containing two small sporules or nuclei. —*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 13. *Sphœria maculæformis* on *Castanea*, *Fckl. exs. no.* 817. *Gonn. & Rabh.* v. *t.* 8, *f.* 109.

On dead leaves of *Castanea vesca*. Darenth Wood, Kent.

Intermixed with *S. oblivia* and *S. maculæformis*, from which it is quite distinct. Sporidia (·0005 in.) ·0125 m.m. long.

2748. Sphærella simulans. *Cooke.* "Imitative Sphærella."

Perithecia arranged in groups on the under surface; asci cylindrical, containing large sausage-shaped uniseptate sporidia.—*Cooke Seem. Journ.* (1866) *t.* 49, *f.* 12. *Gonn. & Rabh.* v. *t.* 2, *f.* 23.

On dead oak leaves. Highgate, 1866.

The perithecia are grouped in a similar manner to those of *S. maculæformis*, with which it probably has hitherto been confounded, but from which it may easily be distinguished by the large sausage-shaped, uniseptate sporidia (·0008 in.) ·02 m.m. long.

2749. Sphærella conglomerata. *Wallr.* "Clustered Sphærella."

Hypophyllous, black, innate, densely conglomerated and confluent; spots gregarious, minute; sporidia stipitate, obovate-oblong, uniseptate, scarcely constricted, hyaline.—*Awd. Gonn. & Rabh.* v. *p.* 5, *t.* 6, *f.* 88. *Sphœria conglomerata*, *Wallr. p.* 814. *Fckl. exs. no.* 832. *Sphœria insularis*, *Fckl. exs. no.* 827. *Stigmatea maculæformis*, *Fckl. exs. no.* 422.

On dead leaves of *Alnus glutinosa*. Gomshall.

2750. Sphærella punctiformis. *Pers.* "Point-like Sphærella."

Scattered; perithecia innate, punctiform, even, rather shining, black, slightly prominent, umbilicate by collapsion; asci minute, clavate; sporidia uniseriate or biseriate, hyaline, elliptical, obtuse at either extremity, granular, greenish-yellow.—*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 14. *Fckl. exs. no.* 816. *Sphærella Cookeana*, *Awd. Gonn. & Rabh. pt.* v. *p.* 2. *t.* 1, *f.* 6. *Sphœria punctiformis*, *Pers. Syn. p.* 90. *Fr. S. M.* ii. *p.* 525. *Eng. Fl.* v. *p.* 279. *Berk. Outl. p.* 401. *Johnst. Fl. Berw.* ii. 130. *Cryptosphœria punctiformis*, *Grev. Fl. Ed. p.* 362 (in part). *Sphœria subconfluens*, *Sow.* (in part.)

On dead leaves. Common. [United States.]

Length of asci (·0013 in.) ·034 m.m., of sporidia (·00035 in.) ·009 m.m. This appears to be the true *S. punctiformis*, to which other species assimilate in external appearance.

2751. Sphærella punctoidea. *Cooke.* "Dot Sphærella."

Perithecia black, shining, semi-innate, prominent, disposed in little groups of seven or eight on the upper surface of leaves, collapsed and concave when dry; asci cylindrical, curved or flexuose; sporidia uniseriate, elliptical or subcymbiform; hyaline highly refractive and colourless.—*Cooke Seem. Journ.* (1866) *t.* 49, *f.* 9.

On the upper surface of oak leaves. Shere, Surrey. Jedburgh.

Length of asci (·0021 in.) ·056 m.m., of sporidia (·00045 in. (·0125 m.m. Quite distinct from *S. punctiformis*, with which it has probably been confounded; the asci are cylindrical, the sporidia are longer, and the perithecia are different in habit and disposition, always occurring in small groups and on the upper surface only. *S. maculæformis* often occurs on the under surface of the same leaf.

2752. Sphærella myriadea. *D.C.* "Cloudy Sphæria."

Epiphyllous. Perithecia very minute, numerous, black, aggregated in large unequal cinereous patches; asci subfusiform; sporidia biseriate, elongated, triseptate, pointed at each extremity.—*Cooke Seem. Journ.* (1866) *t.* 49, *f.* 10. *Fckl. exs. no.* 825. *Cooke exs. no.* 172. *Gonn. & Rabh.* v. *t.* 1, *f.* 9. *Rabh. F.E. no.* 149. *Cooke L.F. no.* 84. *Sphæria myriadea, D.C. Fl. Fr.* vi. *p.* 145. *Duby. Bot. Gall.* ii. *p.* 710. *Desm. Mem. Soc. Roy. de Lille* 1843. *West. & Wall. exs. no.* 73.

On dead oak leaves. Shere, Surrey. [United States.]

Sporidia (·0013 in.) ·035 m.m. long.

2753. Sphærella millegrana. *Cooke.* "Thousand-grain Sphærella."

Epiphyllous. Perithecia scattered, numerous and minute; asci short, cylindrical; sporidia crowded, linear, and uniseptate, the upper cell being ventricose.—*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 15. *Gonn. & Rabh.* v. *t.* 2, *f.* 17.

On the upper surface of dead leaves of hornbeam. Shere, Surrey.

Perithecia resembling those of *S. myriadea*, but not so closely aggregated, and not collected in definite patches. Sporidia (·0006 in.) ·015 m.m. long.

2754. Sphærella latebrosa. *Cooke.* "Sycamore Sphærella."

Hypophyllous. Perithecia scattered over the surface, innate, minute, globose, black, scarcely visible till the epidermis is destroyed by exposure; asci cylindrical, ventricose; sporidia clon-

gated, uniseptate, constricted at the septum, attenuated towards each extremity, with two sporules in each cell.—*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 16. *Gonn. & Rabh.* v. *p.* 10, *t.* 2, *f.* 26.

On dead leaves of sycamore. Shere, Surrey.

Sporidia (·002 in.) ·05 m.m. long.

2755. Sphærella acerifera. *Cooke.* "Maple Sphærella."

Hypophyllous. Perithecia scattered, innate, globose, minute, black; asci broadly cylindrical; sporidia large (three times as long as broad), almond-shaped, hyaline, containing two sporules or nuclei.—*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 18.

On dead leaves of *Acer campestre*. Shere, Surrey.

Sporidia (·0075 in.) ·02 m.m. long.
This is referred doubtfully by Auerswald (*Gonn. & Rabh.* v. *p.* 4) to *Sphærella sparsa*, Wallr.

2756. Sphærella carpinea. *Fr.* "Hornbeam Sphærella."

Hypophyllous. Perithecia gregarious, innate, at first covered, black, commonly scattered over the entire leaf; asci subclavate; sporidia biseriate, broadly and shortly cymbiform, the least curved side being a little hollowed out towards either apex.—*Cooke Seem. Journ. t.* 50, *f.* 19. *Gonn & Rabh. pt.* v. *t.* 2, *f.* 16. *Rabh. exs. no.* 365. *West. exs.* 275. *Sphæria carpinea, Fr. Sys. Myc.* ii. *p.* 523. *Desm. Pl. Crypt. no.* 981. *B. & Br. Ann. N.H. no.* 655, *t.* 12, *f.* 41. *Cooke exs. no.* 165. *Cooke L.F. no.* 86. *Ascospora carpinea, Fr. Summ.* 425. *Rabh. exs.* 365. *Fckl. exs. no.* 466.

On dead leaves of hornbeam.

Sporidia (·0005 in.) ·015 m.m. long.

2757. Sphærella pinastri. *Duby.* "Fir-leaf Sphærella."

Perithecia minute, scattered, globose, depressed, immersed, piercing the epidermis with their short ostiola; asci clavate; sporidia crowded, colourless, elliptical, often acuminate.—*Cooke Seem. Journ. t.* 50, *f.* 27. *Sphæria pinastri, Duby, Bot. Gall.* ii. *p.* 704. *Grev. t.* 13. *Eng. Fl.* v. *p.* 270. *Curr. Linn. Trans.* xxii. *p.* 324, *t.* 58, *f.* 82.

On fallen fir leaves.

Sporidia (·0003-·0004 in.) ·0075-·01 m.m. long.

2758. Sphærella inæqualis. *Cooke.* "Unequal Sphærella."

Hypophyllous. Perithecia scattered, innate, globose, black, surmounted by three or four stiff hairs or setæ which pierce

through the epidermis; asci ventricose, attenuated upwards; sporidia biseriate or crowded, uniseptate, the upper cell subglobose, the lower cell twice the length of the upper, slightly yellowish.—*Cooke Seem. Journ.* (1866) *t.* 50, *f.* 26. *Cooke exs. no.* 173. *Cooke. L.F. no.* 85. *Sphærella cinerascens, Fleisch. Rabh. exs. no.* 45 (not *S. cinerascens, Fckl. exs. no.* 824).

On dead leaves of *Pyrus aria*, ash, hawthorn, pear, apple, &c. Common.

Sporidia (·0005 in.) ·013 m.m. long.

2759. Sphærella vaccinii. *Cooke.* "Bilberry Sphærella."

Perithecia minute, innate, black, shining, numerous, crowded together on the under surface in definite cinereous patches, determined by the veins of the leaves; asci subfusiform; sporidia elongated, narrow, uniseptate, hyaline. — *Cooke Seem. Journ.* (1866) *t.* 49, *f.* 11. *Sphærella myrtilli, Awd. Gonn. & Rabh.* v. *t.* 4, *f.* 46. *Cooke exs. no.* 176.

On semi-putrid leaves of *Vaccinium myrtillus*. Shere, Surrey.

Often on the same leaves as *Venturia myrtilli*. Asci ·04 m.m. long. Sporidia (·0007 in.) ·018 m.m. long.

2760. Sphærella ligustri. *Rob.* "Privet Sphærella."

Epiphyllous, rarely hypophyllous. Perithecia very minute, numerous, densely scattered, black, subglobose, then collapsing and umbilicate; asci clavate; sporidia oblong, with three or four sporules.—*Cooke Seem. Journ. t.* 50, *f.* 22. *Sphæria ligustri, Rob. Desm. exs. ed.* 1, *no.* 1296, *ed.* 2, *no.* 796. *Ann. S.N.* (1843) xix. *p.* 361. *Fckl. exs. no.* 835. *Gonn. & Rabh.* v. *t.* 7, *f.* 97.

On dead privet leaves.

Asci ·04 m.m. long. Sporidia (·0003 in.) ·01 m.m. long.

2761. Sphærella eryngii. *Fr.* "Sea Holly Sphærella."

Amphigenous. Perithecia innate, very small, globose, black, crowded together in brownish spots; asci large, cylindrical, flexuose; sporidia biseriate, uniseptate, constricted at the septum, attenuated towards each extremity, colourless.—*Cooke Seem. Journ. t.* 50, *f.* 21. *Fckl. exs. no.* 860. *Sphæria eryngii, Fr. Duby Bot.* ii. *p.* 710. *Desm. exs. no.* 1300. *B. & Br. Ann. N.H. no.* 657.

On dead leaves of *Eryngium*.

Sporidia (·0008 in.) ·02 m.m. long.
Fuckel refers as spermogonia to this species *Asteroma reticulata*, Chev.

2762. Sphærella rusci. *De Not.* "Butcher's Broom Sphærella."

Perithecia very numerous, scattered, punctiform, glaucous or bluish-black, rendering the leaf pale, at first covered with the epidermis; asci linear-clavate; sporidia biseriate, oblong, obtuse, 4-5 septate, constricted at the septa, yellowish.—*De Not. Schema p.* 63. *Erb. Critt. Ital. no.* 886. *Sferiacei Italici pl.* 95. *Sphæria Rusci, Wallr. Fl. Germ. p.* 776. *B. & Br. Ann. N.H. no.* 639*. *Fckl. exs. no.* 838. *Berk. exs. no.* 86. *Curr. Linn. Trans.* xxii. *pl.* lix. *f.* 120. *Sphæria atrovirens,* δ. *Rusci, Eng. Fl.* v. *p.* 272. *Desm. exs. no.* 1281. *Cryptosphæria glauco-punctata, Grev. Fl. Ed. p.* 362. *Sphæria glauco-punctata, Curr. Linn. Trans.* xxii. *pl.* lix. *fig.* 144. *Cooke Seem. Journ.* (1866) *t.* 50, *f.* 20. *Cooke exs. no.* 166.

On dead *Ruscus aculeatus.* Common.

Sporidia (·0006-·0010 in.) ·015-·025 m.m. long.

2763. Sphærella isariphora. *De Not.* "Stellaria Sphærella."

Conidia.—Tufts lax, on pallid spots, at length black; stem erect; conidia apical, ovate.—*Stysanus pusillus, Fckl. exs. no.* 174. *Sym. Myc. t.* i. *f.* 29.

Spermogonia=*Septoria stellariæ, West.*

Epiphyllous; perithecia very small, globose, depressed, scattered, black, often concealed beneath the epidermis; ostiola poriform; asci elongated, containing the oval or oblong sporidia, which are almost colourless, uniseriate, and uniseptate.—*Schema di Class. Sfer. Ital. p.* 63. *Cooke Seem. Journ.* 1866, *t.* 45, *f.* 11. *Cooke exs. no.* 167. *Sphæria isariphora, Desm. Mem. Soc. Roy. de Lille,* 1843; *exs. no.* 1291; *West. Bull. de Brux.* 1850, *no.* 27.

On dead leaves of *Stellaria holostea.* Common.

M. Desmazieres observes that this species often supports a minute parasitic *Isaria*, whence its name. I have never been able to find such a parasite, although I have sought for it diligently. M. Westendorp makes a similar observation of want of success in verifying the fact.

2764. Sphærella Leightoni. *Berk.* "Leighton's Sphærella."

Epiphyllous; perithecia subglobose, pitch-brown; ostiola conical; asci clavate; sporidia oblong, cymbiform, triseptate.—*Cooke Seem. Journ.* 1866, *t.* 50, *f.* 25. *Sphæria Leightoni, B. & Br. Ann. N.H. no.* 659, *t.* xii. *fig.* 43.

On dead leaves of *Linnæa borealis*. Glen Dole, Clova.

Minute, scattered over the upper surface of the leaves, pitchy brown, shining, narrowed into a short conical ostiolum. Asci clavate, sublanceolate. Sporidia oblong-cymbiform, about four times as long as broad, obtuse, scarcely curved. Endochrome at first retracted to either end; a septum is then formed between the two masses, which are at length again divided.

2765. Sphærella pteridis. *Desm.* "Bracken Sphærella."

Epiphyllous; spots greyish or none; perithecia minute, globose, scattered or aggregate, covered with the epidermis; asci clavate; sporidia elongated-fusiform, straight or curved, uniseptate, hyaline.—*Cooke Seem. Journ. t.* 50, *f.* 32. *Cooke exs. no.* 175. *Sphæria pteridis, Desm. exs. no.* 1295 (not *Schm. exs. no.* 2, which is *Dothidea*). *B. & Br. Ann. N.H. no.* 656. *Sphæria litura, Berk. MSS. Sphæria punctiformis, b. Pteridis, Fries exs. no.* 86 (not *Sphærella pteridis, De Not. Sfer. Ital. tab.* 99).

On dead fronds of *Pteris aquilina*.

Sporidia (·0005 in.) ·015 m.m. long.

2766. Sphærella erysiphina. *Berk.* "Hop-leaf Sphærella."

Epiphyllous; perithecia scattered, minute, almost superficial, brown; asci cylindrical; sporidia uniseriate, hyaline, uniseptate. *Cooke Seem. Journ. t.* 50, *f.* 24. *Sphæria erysiphina, B. & Br. Journ. Hort. Soc.* ix. *p.* 67.

On living hop leaves.

Accompanying and mixed with *Sphærotheca Castagnei*.
Sporidia (·0005 in.) ·0125 m.m. long.

2767. Sphærella microspila. *B. & Br.* "Willow herb Sphærella."

Perithecia scattered, globose, one or more immersed in a minute brown spot arising from the delicate mycelium; asci cylindrical; sporidia oblongo-elliptic, uniseptate.—*Cooke Seem. Journ. t.* 50, *f.* 23. *Sphæria microspila, B. & Br. Ann. N.H. no.* 984, *t.* 17, *f.* 36.

On leaves of *Epilobium montanum*. Orton Wood.

Sporidia (·0002-·0005 in.) ·005-·0127 m.m. long.

2768. Sphærella brassicæcola. *De Not.* "Cabbage Sphærella."

Spermogonia.—Perithecia circinating, crowded, in suborbicular pallid spots; spermatia hyaline, minute.—*Asteroma brassicæ, Chev. Fl. Par.* 1, *p.* 449. *Berk. Ann. N.H. no.* 204.

Ascophore.—Epiphyllous; spots orbicular, large, pallid or cinereous, brownish in the centre; perithecia crowded, circinating, minute, subrotund, black; asci cylindrical; sporidia elongated, cylindrical, obtuse at the extremities, hyaline.—*De Not. Schema, p.* 64. *Cooke Seem. Journ.* 1866, *t.* 50, *f.* 17. *Sphæria brassicæ, B. & Br. Ann. N.H. no.* 656*, *t.* xii. *f.* 42. *Sphæria brassicæcola, Duby, Bot. Gall.* ii. *p.* 712.

On cabbage leaves. Autumn and Spring. Common.

Nothing can be more common than this on cabbage leaves in autumn and spring, but it is not often found with perfect fruit.—*B. & Br.*

2769. Sphærella rumicis. *Desm.* "Dock Sphærella."

Spots amphigenous, minute, numerous, orbicular, scattered, brown; perithecia epiphyllous, conglomerate, somewhat innate, very small, globoso-depressed, becoming concave, olivaceous, then black, pierced with a simple pore; asci large, cylindrical, slightly curved; sporidia ovate-oblong, obtuse, uniseptate.—*Cooke Seem. Journ.* 1866, *t.* 50, *f.* 28. *Cooke. exs. no.* 168. *Gonn. & Rabh.* v. *t.* 4, *f.* 53. *Sphæria rumicis, Desm. exs. no.* 1298. *B. & Br. Ann. N.H. no.* 658. *Sphæria lichenoides, Johnst. Fl. Berw.* ii. *p.* 131.

On living dock leaves. Common.

Sporidia (·0006 in.) ·015 m.m. long.

2770. Sphærella allicina. *Awd.* "Onion Sphærella."

Perithecia amphigenous, black, covered by the grey epidermis, densely gregarious or confluent; sporidia biseriate, oblong, rounded at each end, straight, uniseptate, hyaline, not constricted.—*Awd. in Gonn. & Rabh.* v. *p.* 19, *t.* 5, *f.* 69. *Sphæria allicina, Fr. S.M.* ii. *p.* 437. *Rabh. F.E. no.* 639.

On *Allium*. Shere (E.C.).

2771. Sphærella anarithma. *B. & Br.* "Scattered Grass Sphærella."

Scattered, minute; perithecia globose, penetrating the cuticle by the small papillæform ostiolum; asci clavate; sporidia biseriate, sublaneeolate, strongly constricted in the centre, uniseptate.—*Cooke Seem. Journ. t.* 50, *f.* 29. *Sphæria anarithma, B. & Br. Ann. N.H. no.* 893, *t.* 11, *f.* 37.

On *Aira cæspitosa*. Oct.—March. Batheaston.

Sporidia (·0012 in.) ·03 m.m. long.

2772. Sphærella recutita. *Fr.* "Linear Grass Sphærella."

Conidia.—Flocci fasciculate, short, simple, septate, yellow, forming little tufts on bleached spots ; conidia oblong, didymous, yellowish.—*Scolicotrichum graminis*, *Fckl. exs. no.* 130.

Spermogonia.—Perithecia innate, minute, black, numerous, aggregated, pierced, disposed in parallel lines between the veins ; spermatia linear, straight, or flexuous.—*Septoria graminum*, *Desm. Ann. Sc. Nat.* xix. (1843), *p.* 339.

Ascophore.—Hypophyllous. Perithecia aggregate, innate, slightly prominent, very minute, black, forming long parallel striæ ; asci clavate ; sporidia uniseptate, hyaline.—*Cooke Seem. Journ.* (partly). *Fckl. exs. no.* 820. *Sphæria recutita*, *Fr. S.M.* ii. *p.* 524. *Berk. Eng. Fl.* v. *p.* 278.

On grasses.

"The perithecia grow in rows, but are quite distinct."—*M.J.B.* The figure and description of fruit given in Seem. Journ. Bot. (1866), t. 50, f. 30, taken from a specimen published in Rabenhorst's Fungi Europæi exs. no. 740, do not belong to this species, but to *S. culmicola*, Fr.

2773. Sphærella lineolata. *De Not.* "Lineolate Sphærella."

Amphigenous, erumpent, with a brownish stroma ; perithecia very small, disposed in lines ; asci clavate ; sporidia oblong, with from three to five sporules or nuclei.—*De Not. Schema p.* 63. *Cooke Seem. Journ.* (1866). *t.* 50, *f.* 31. *Gonn. & Rabh.* v. *t.* 8, *f.* 113. *Sphæria lineolata*, *Roberge*, *Desm. exs. no.* 1263. *B. & Br. Ann. N.H. no.* 616.

On *Ammophila arundinacea.* Sands of Barrie.

Sporidia ·0125 m.m. long (at length uniseptate).

2774. Sphærella hederæ. *Sow.* "Ivy Sphærella."

Pycnidia.—Scattered ; perithecia innate, rather prominent, convex, even, black, ostiolum white ; stylospores ovate, pellucid. —*Sphæropsis leucostigma*, *Lev. Ann. Sc. Nat.* (1846), *p.* 296. *B. & Br. Ann. N.H. no.* 420. *Sphæropsis hederæ*, *Curr. Linn. Trans.* xxii. *p.* 332.

Ascophore.—Scattered ; perithecia, together with the innate epidermis, rather prominent, convex, even, black ; ostiolum pierced, white ; sporidia lanceolate, trisceptate, constricted, nucleate.—*Sphæria hederæ*, *Sow. t.* 371, *f.* 5. *Eng. Fl.* v. *p.* 278.

On dead ivy leaves. Shere. (Dr. Capron.)

2775. Sphærella buxi. *D.C.* "Box-leaf Sphærella."

Pycnidia.—Scattered in quincunxes, greyish-black; perithecia globose, slightly prominent; disc covered, depressed, white, at length erumpent, naked; stylospores oblong, twice as long as broad.—*Sphæropsis Candollii, B. & Br. Ann. N.H. no.* 423. *Berk. exs. no.* 180.

Ascophore.—Perithecia light yellow, rather longer than broad, with a small mammillate ostiolum; sporidia uniseriate, colourless, acuminate, elliptical.—*Sphæria buxi, D.C. Fl. Fr.* vi. *p.* 146. *Rabh. F.E. no.* 940. *Rabh. exs. no.* 531. *Curr. Linn. Trans.* xxii. *p.* 283, *t.* 49, *f.* 186. *S. atrovirens, var. Buxi, Eng. Fl.* v. *p.* 272.

On dead box leaves. Milton.

Sporidia probably at length uniseptate (·0005 in.) ·025 m.m.

2776. Sphærella ostruthii. *Fr.* "Angelica Sphærella."

Hypophyllous, aggregated; perithecia globose, small, black, emerging from a determinate grey crust.—*Fr. Obs.* i. *p.* 174. *Berk. Ann. N.H. no.* 102. *Berk. exs.* 330. *Schm. exs. no.* 205. *Ascospora ostruthii, Fr. S.V.S.* 426.

On leaves of *Angelica sylvestris.* Sept.

2777. Sphærella brunneola. *Fr.* "Brown Sphærella."

Gregarious; perithecia globose, very minute, mouthless, black, emerging from a determinate brown, oblong spot, which at length becomes black; sporidia?—*Fr. S.M.* ii. *p.* 526. *Eng. Fl.* v. *p.* 279. *Fries. exs. no.* 248. *Berk. exs. no.* 39. *Ascospora brunneola, Fr. S.V.S. p.* 425. *Fckl. exs. no.* 467.

On dead leaves of *Convallaria majalis.*

The fruit of this species seems to be unknown as well as that of the last-named.

Gen. **358.** **VENTURIA,** De Not.

Fig. 398.

Perithecia fragile, hispid or setulose at the apex; ostiolum large; paraphyses none; sporidia one or two celled, colourless, or slightly coloured.—*De Not. in Att.* vi. *riun. scienz. p.* 485. *Fr. S.V.S. p.* 405. *Cooke B.F. 2nd ed. p.* 159. (*Fig.* 398.)

* *Epiphyllous.*

2778. Venturia Dickiei. *De Not.* "Dickie's Venturia."

Perithecia aggregate, erumpent, subglobose; ostiola obtuse, papillæform, beset with rather long, rigid setæ, seated on an interwoven filamentous stratum; asci short, subcylindrical; sporidia uniseptate, quadrinucleate.—*Sphæria Dickiei, B. & Br. Ann. N.H. no.* 617, *pl.* x. *f.* 8. *Lasiobotrys Linnææ, Dickie, MSS. Berk. Outl. p.* 404. *Venturia Dickiei, De Not. Schema. p.* 51. *Cooke Seem. Journ.* 1866, *t.* 49, *f.* 1.

On leaves of *Linnæa borealis.*

Forming orbicular sori beneath the true cuticle about a line broad. Perithecia at length exposed, subglobose, with an obtuse papillæform ostiolum, beset with stiff dark bristles, as long or longer than themselves, springing from a radiating, more or less interwoven stratum, of very obscurely septate brownish threads, amongst which are a few darker and closely articulate. Asci short, subcylindrical, obtuse. Sporidia oblong, short, containing about four nuclei or four regular endochromes, or more properly uniseptate, with two endochromes in each division.

2779. Venturia chætomium. *De Not.* "Small Sedge Venturia."

Hypophyllous, rarely epiphyllous; peritheeia very minute, superficial, scattered or gregarious, subglobose, collapsed when dry, black, covered with rigid divergent hairs; ostiolum papillate; asci nearly spindle-shaped; sporidia oblong, straight or slightly curved, containg four sporules or nuclei.—*Sphæria chætomium, Corda.* ii. *t.* 13. *f.* 102. *B. & Br. Ann. N.H. no.* 620, *t.* 9, *f.* 3. *Chætomium pusillum, Fries. exs. no.* 272. *Sphæria exosporioides, Desm. exs. no.* 126. *Venturia chætomium, De Not. Schema, p.* 51. *Cooke Seem. Journ.* 1866, *t.* 49, *f* 3.

On dead leaves of *Carex pendula.*

Sporidia (·00027 in.) ·007 m.m. long.

2780. Venturia eres. *De Not.* "Long-haired Venturia."

Scattered, superficial; peritheeia globose, beset with long, rigid articulated bristles; asci short, elavate; sporidia oblong, uniseptate.—*Sphæria eres, B. & Br. Ann. N.H. no.* 621, *pl.* ix. *fig.* 4. *Venturia eres, De Not. Schema, p.* 51. *Cooke. Seem. Journ.* 1866, *t.* 49, *f.* 2.

On dead leaves of *Carices.*

Scattered over the leaves and quite superficial, attached by a few hyaline creeping threads. Perithecia globose, beset with very long radiating, rigid, somewhat pellucid, articulated bristles, which are black to the naked eye, but purplish-brown under the microscope; when young their apices are often swollen. Asci rather short, clavate. Sporidia biseriate, oblong-elliptic, about four times as long as broad.

The perithecia are much larger than in *V. chætomium*, the hairs are longer, pellucid, and not opaque; asci clavate, and not fusiform, and the uniseptate sporidia are shorter.

2781. Venturia myrtilli. *Cooke.* "Bilberry Venturia."

Scattered over either surface; perithecia globose, black, covered with long rigid hairs; asci ventricose, attenuated upwards; sporidia biseriate or crowded, uniseptate, obtuse above, attenuated below, hyaline.—*Cooke Seem. Journ.* 1866, *t.* 49, *f.* 4. *Cooke exs. no.* 164. *Cooke L.F. no.* 82.

On semi-putrid leaves of *Vaccinium myrtillus*. Shere, Surrey.

Sporidia (·0004 in.) ·01 m.m. long.

2782. Venturia ilicifolia. *Cooke.* "Holly-leaf Venturia."

Scattered over the upper surface (perhaps also on both surfaces) superficial; perithecia minute, subglobose, black, clad with long, rigid, divergent hairs; asci subfusiform, minute; sporidia biseriate, narrowly elliptic or lanceolate, uniseptate, scarcely constricted.—*Cooke Seem. Journ.* 1866, *t.* 49, *f.* 5.

On semi-putrid leaves of holly and sallow. Shere, Surrey.

Asci (·0008 in.) ·02 m.m. long. Sporidia (·0003 in.) ·008 m.m. long. The species on sallow (*Salix caprœa*) is not specifically distinct, as far as can be judged from a single specimen. *(Fig.* 398.*)*

2783. Venturia integra. *Cooke.* "Entire spored Ventura."

Perithecia scattered, superficial, small, delicate, dark brown, covered with long flexuous hairs; asci narrowly clavate; sporidia biseriate, elliptic, entire, endochrome minutely granular, nearly colourless.

On leaves of *Corylus avellana*. Shere. (Dr. Capron.)

Sporidia ·000-·0004 in.

** *Corticolous.*

2784. Venturia barbula. *B. & Br.* "Pine Bark Venturia."

Cæspitose; perithecia globose, collapsed, slightly pilose; sporidia oblong, uniseptate.—*Sphæria barbula, B. & Br. Ann. N.H. no.* 870, *t.* 10, *f.* 20.

On bark of pine. March. Wraxall.

Forming little tufts; perithecia globose, collapsed when dry, astomous, clothed with a few short scattered hairs; sporidia oblong, or subelliptic (·0005 in.) uniseptate. Allied closely to *S. chætomium*.—*B. & Br.*

Gen. **359.** **PYRENOPHORA,** Fr.

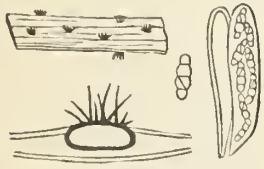


Fig. 399.

Nucleus slowly formed, immersed in a sclerotioid mass, which performs the office of a perithecium; ostiolum at length slightly prominent; sporidia multiseptate.—*Fr. Berk. Outl. p.* 402. *(Fig.* 399.*)*

2785. Pyrenophora phæocomes. *Fr.* "Bristly Pyrenophora."

Scattered, jet black; perithecia globoso-hemispherical, almost mouthless, beset with erecto-divergent hairs; asci cylindrical; sporidia oblong, obtuse, at first triseptate, constricted, at length muriform, yellowish.—*Fr. S.V.S. p.* 398. *Fckl. Sym. Myc. p.* 215, *t.* 6, *f.* 41. *Fckl. exs. no.* 798. *Sph. phæocomes, Reb. Neom. t.* 1, *f.* 4. *Fr. S.M.* ii. *p.* 515. *Eng. Fl.* v. *p.* 276. *Ann. N.H. no.* 207, *t.* 11, *f.* 8. *S. capillata, Grev. t.* 69.

On dead leaves of grasses. *(Fig.* 399.*)*

Gen. **360.** **CERATOSTOMA,** Fr.

Fig. 400.

Perithecia soft, membranaceous; ostiolum subulate, rostrate; asci soon disappearing; sporidia oozing out and forming a mass at the ostiolum. —*Berk. Outl. p.* 402. *(Fig.* 400.*)*

2786. Ceratostoma caprinum. *Fr.* "Woolly Ceratostoma."

Perithecia superficial, globose, villous, white; ostiola very long, subulate, black; asci clavate; sporidia simple, oozing out when mature and forming a globose mass at the ostiolum.—*Fr. S.V.S. p.* 396. *Sphæria caprina, Fl. Dan. t.* 1859, *f.* 2.

Amongst rubbish. *(Fig.* 400.*)*

2787. Ceratostoma Zobelii. *Berk.* "Truffle Ceratostoma."

Perithecia very minute, punctiform, globose; asci broad, sessile; sporidia ovate-lanceolate or elliptic, unequal-sided, simple, brown, opaque.—*Berk. Outl. p.* 402. *Microthecium Zobelii, Corda. Ic.* v. *f.* 53. *Bot. Zeit.* 1861. *Fckl exs. no.* 809. *Ceratostoma brevirostre, Fckl. Sph. Zobelii. Tul. Fung. Hyp. p.* 186. *Melanospora Zobelii, Fckl. Sym. Myc. p.* 127.

On truffles.

Gen. **361.** **ORBICULA,** Cooke.

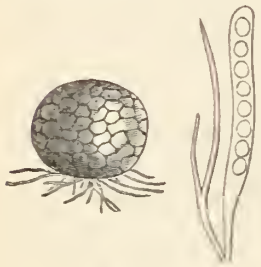


Fig. 401.

Perithecia between membranaceous and carbonaceous, reticulated, seated on a distinct mycelium; ostiolum obsolete; asci cylindrical; sporidia subglobose, hyaline or coloured; paraphyses simple or branched. (*Fig.* 401.)

2788. Orbicula cyclospora. *Cooke.* "Paper Orbicula."

Mycelium radiating, branched, colourless; perithecia globose, dark-brown, reticulated; asci cylindrical; paraphyses branched; sporidia globose, hyaline.—*Sphæria cyclospora, Cooke in Pop. Sci. Rev. Jan.* 1871, *t.* 35, *f.* 10, 11.

On varnished wall paper.

This species was accompanied by *Rhinotrichum lanosum, Penicillium chartarum,* and *Sporidesmium alternaria,* all of which may be connected therewith as conidia and stylospores. (See Popular Science Review quoted above.) There appears to be no decided mouth to the perithecia, so that it is not a true *Sphæria.* (*Fig.* 401.)

2789. Orbicula tartaricola. *Cooke.* "Lichen Orbicula."

Mycelium superficial, dark-brown, radiating, very much branched and articulated, the joints oblong and nucleate; perithecia oblong-conical, black, growing in the interstices of the matrix; asci linear; sporidia simple, spherical or oblong, at first colourless, at length brown, and minutely nucleate.—*Sphæria tartaricola, Leight. Ann. N.H.* xix. *p.* 408. *Linn. Trans.* xxvii. *p.* 159, *t.* 35, *lower figs.*

On thallus of *Lecanora tartarea.* Near Dolgelly.

This parasite was growing on the interstices of the areolæ of the thallus of the lichen, and never on the surface. The only specimen observed was collected, and is deposited in the Kew Herbarium. No mention whatever is made by the Rev. W. Leighton of any ostiolum, nor is there any indication in the figures. In this respect, as well as in the reticulated substance of the perithecia, distinct mycelium, and spherical sporos it accords with the preceding species, both of which seem to offer good features for a distinct genus, the absence of ostiolum being sufficient reason to exclude them from the genus *Sphæria*.

Gen. **362.** **MICROTHYRIUM,** Desm.

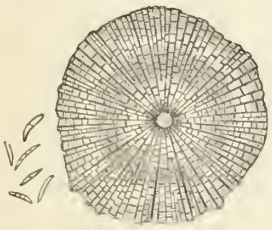


Fig. 402.

Perithecia simple, superficial, membranaceous, adpressed, scutiform, perforated in the centre; asci fixed, subclavate. — *Desm. Ann. Sc. Nat.* xv. (1841), *p.* 137. (*Fig.* 402.)

2790. Microthyrium microscopicum. *Desm.* "Microscopic Microthyrium."

Epiphyllous; spots large, irregular, greyish; perithecia scattered, minute, flattened, black, somewhat shining, papillate; asci clavate; sporidia nearly fusiform, uniseptate, at length triseptate, hyaline.—*Desm. Ann. Sc. Nat.* (1841), xv. *p.* 138, *t.* 14, *f.* 1. *Desm. exs. no.* 1092. *Fckl. exs. no.* 190. *Cooke exs. no.* 282. *Cooke, L.F. no.* 91.

On leaves of box, evergreen oak, &c.

Fuckel, in his Symbolæ Mycologicæ (p. 98, t. iii. f. 11, a. b. c,) makes a distinct species of the form found on oak leaves, but, it appears to us, without sufficient reason. (*Fig.* 402.)

Gen. **363.** **STIGMATEA,** Fr.

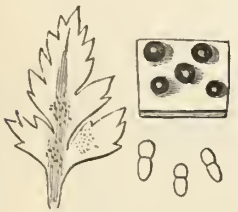


Fig. 403.

Parasitic; perithecia globose, black, innate, slightly prominent; nucleus firm, at first mouthless, then with a roundish aperture.—*Tul. Carp.* ii. *p.* 286. (*Fig.* 403.)

2791. Stigmatea conferta. *Fr.* "Crowded Stigmatea."

Innate, hypophyllous, irregular, black; perithecia rather prominent, globose, confluent in the centre.—*Fr. S.V.S. p.* 421. *Sph. conferta, Fr. S.M.* ii. *p.* 435. *Berk. Ann. N.H. no.* 177.

On leaves of *Vaccinium uliginosum.* Glencoe.

Perithecia rather prominent, minute, aggregated, opaque, astomous, contents white.

2792. Stigmatea geranii. *Fr.* "Geranium Stigmatea."

Conidia.—Ovate, oblong, or subcylindrical, straight, at length quadrilocular.—*Fusidium geranii, West. Act. Belg.* (1851), *p.* 413.

Ascophore.—Hypophyllous; perithecia minute, slightly prominent, mouthless, somewhat connate, and forming a spot-like orbicular tuft; sporidia ovate-oblong, at length uniseptate, pallid.—*Tul. Carp.* ii. *p.* 290. *Fckl. exs. no.* 420. *Dothidea geranii, Fr. S.M.* ii. *p.* 558. *Eng. Fl.* v. *p.* 287. *Xyloma geranii, Grev. Fl. Ed. p.* 368.

On leaves of *Geranium sylvaticum.* Scotland.

Forming black spots 1-2 lines broad, dotted with the slightly prominent perithecia, which are white within.—*Fries.*

2793. Stigmatea ranunculi. *Fr.* "Crowfoot Stigmatea."

Hypophyllous; spots indeterminat e,uniform, black; perithecia subgregarious, depressed, unequal.—*Fr. S.V.S. p.* 421. *Dothidia ranunculi, Fr. S.M.* ii. *p.* 562. *Eng. Fl.* v. *p.* 287.

On leaves of *Ranunculi.* Berwick.

2794. Stigmatea Robertiani. *Fr.* "Herb Robert Stigmatea."

Epiphyllous, scattered, hemispherical, even, shining, black, white within; asci oblong; sporidia biseriate, oblong, uniseptate, yellowish.—*Cooke L.F. no.* 80. *Fr. S.V.S. p.* 421. *Cooke exs. no.* 283. *Fckl. exs. no.* 419. *Dothidea Robertiani, Fr. S.M.* ii. *p.* 288. *Eng. Fl.* v. *p.* 288. *Grev. t.* 146, *f.* 1. *Baxt. exs. no.* 78. *Cryptosphæria nitida, Grev. Fl. Ed. p.* 363.

On green leaves of *Geranium Robertianum.* Common.

(Fig. 403.)

2795. Stigmatea potentillæ. *Fr.* " Potentilla Stigmatea."

Spermogonia.—Perithecia hemispherical; spermatia biloculär, curved, caudate, hyaline.—*Septoria potentillarum, Fckl. Sym. Myc. t.* 2, *f.* 50. *Fckl. exs. no.* 502.

Ascophore.—Epiphyllous, seriato-confluent, following the direction of the nerves, slightly hairy, opaque, black; asci oblong, curved; sporidia elongated, ovate, uniseptate.—*Fr. S.V.S. p.* 422. *Fckl. exs. no.* 423. *Cooke exs. no.* 174. *Dothidea potentillæ, Fr. S.M.* ii. *p.* 563. *Eng. Fl.* v. *p.* 288. *Sphæria potentillæ, Sow. t.* 370, *f.* 2.

On living leaves of *Potentillæ.*

2796. Stigmatea alchemillæ. *Grev.* " Alchemilla Stigmatea."

Epiphyllous, black, seated on a pallid spot; perithecia slightly prominent, connate, disposed in rows, which radiate from a common centre; asci oblong; sporidia elongated-ovate, simple, hyaline.—*Fr. S.V.S. p.* 423. *Fckl. exs. no.* 425. *Dothidea alchemillæ, Eng. Fl.* v. *p.* 288. *Asteroma alchemillæ, Fr. El.* ii. *p.* 152. *Grev. Fl. Ed. p.* 369.

On living leaves of *Alchemilla.* Scotland.

When mature consisting of black, minute, raised points, or very short lines clustered on pale circular spots on the leaf. The points are irregularly arranged, but they are most closely set in the centre, and assume altogether an obscure star-like form.—*Johnst.*

2797. Stigmatea polygonorum. *Fr.* " Polygonum Stigmatea."

Amphigenous, sub-gregarious, minute, black, rather shining, collapsing, of the same colour within.—*Fr. S.V.S. p.* 421. *Dothidea polygoni, Fr. S.M.* ii. *p.* 564.

On leaves of *Polygonum.*

2798. Stigmatea chætomium. *Fr.* " Raspberry Stigmatea."

Epiphyllous, scattered, unequal, pilose, black, brownish within; sporidia ovate, uniseptate, yellowish.—*Fr. S.V.S. p.* 422. *Fckl. exs. no.* 424. *Dothidea chætomium, Fr. S.M.* ii. *p.* 563. *Berk. Ann. N.H. no.* 200.

On leaves of raspberry and *Rubus cæsius.*

Gen. 364. **HYPOSPILA**, Fr.

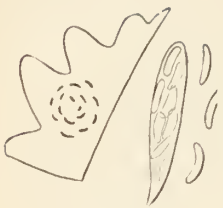


Fig. 404.

Perithecia globose, black, mouthless, innate, concealed by the blackened substance of the leaves, ultimately splitting across.—*Fr. S.V.S. p.* 421.

(*Fig.* 404.)

2799. Hypospila quercina. *Fr.* "Oak-leaf Hypospila."

Spermogonia.—Spermatia minute, cylindrical, curved.

Ascophore.—Minute, disposed in circles, penetrating the leaf, flattened, black, at length splitting all round; perithecia slightly prominent, convex, at length umbilicate; sporidia biseriate, elliptical, colourless, curved.—*Fr. S.V.S. p.* 421. *Cooke exs. no.* 177. *Fckl. exs. no.* 417. *Cooke L.F. no.* 90. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 204. *Sph. bifrons*, *Fr. S.M.* ii. *p.* 438. *Eng. Fl.* v. *p.* 258. *S. circumvoluta*, *Sow. t.* 373, *f.* 4. *Xyloma DC. Mem. Mus.* ii. *t.* 3, *f.* 11. *Moug. exs. no.* 480.

On dry oak leaves.

Patches angular, not one line broad, their shape being dependant on the meshes of the veins, seated on a white spot; perithecia one or more, at length naked, from the upper portion of the patch breaking off.—*M.J.B.*

Sporidia (·0003 in.) ·0127 m.m. (*Fig.* 404.)

2800. Hypospila populina. *Fr.* "Poplar Hypospila."

Spermogonia.—Spermatia minute, cylindrical, curved.

Ascophore.—Innate, flat, angular, opaque, black, scattered upon a pale spot; perithecia latent, generally solitary; sporidia filiform, the length of the asci, colourless, multiseptate.—*Fr. S. V.S. p.* 421. *Fckl. exs. no.* 418. *Sph. ceuthocarpa*, *Fr. S.M.* ii. *p.* 439. *Eng. Fl.* v. *p.* 258. *Moug. exs. no.* 269. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 213.

On dry poplar leaves.

More scattered than *H. quercina*, rather larger, and not shining.

Gen. **365.** **ISOTHEA**, Fr.

Fig. 405.

Nucleus without a peritheeium, eoloured, or black, eovered by the transformed substanee of the matrix, or immersed therein.—*Fr. S.V.S. p.* 421. (*Fig.* 405.)

2801. Isothea rhytismoides. *Fr.* "Pitehy Isothea."

Cells globose, seattered, or erowded, covered by the polished, blackened, eutiele, eontents salmon-eoloured; ostiola very small, obsolete; asei elavate; sporidia oblong, obtuse.—*Fr. S.V.S. p.* 421. *Sph. rhytismoides, Bab. Abst. Linn. Trans. p.* 32. *Berk. exs. no.* 324. *Berk. Ann. N.H. no.* 178, *t.* 10, *f.* 9. *Curr. Linn. Trans.* xxii. *t.* 49, *f.* 209. *Sphæria dryadis, Fckl. exs.* 2161.

On leaves of *Dryas*. Sept. Sutherlandshire.

Epiphyllous occupying the whole surface, or detached portions of the leaf; cells generally scattered, sometimes confluent in the former case, the epidermis between them is cinereous, but above them raised, jet-black and shining mouth simple; very minute. Contents salmon-coloured, containing elavate asci, with linear paraphyses. Sporidia biseriate, oblong, obtuse, sometimes containing two sporidiola.

Sporidia (·0006 in.) ·015 m.m. (*Fig.* 405.)

2802. Isothea pustula. *Berk.* "Oak-leaf Isothea."

Uniloeular, eonvex, even, reddish-brown, white within, eontents black; asei elavate; sporidia oblong.—*Berk. Outl. p.* 392. *Phoma pustula, Fr. S.M.* ii. *p.* 547. *Fries. exs. no.* 205. *Berk. exs. no* 40. *Eng. Fl.* v. *p.* 284. *Sph. pustula, Pers. Ann.* 11, *t.* 2, *f.* 7, *b. Pers. Syn p.* 91. *Fckl. Sym. Myc. t.* vi. *f.* 33.

On fallen oak leaves. Common. [Mid. Carolina.]

2803. Isothea immunda. *Cooke.* "Small Oak Isothea."

Uniloeular, sometimes pluriloeular (one-third the size of those in *I. pustula*), blaek, plane, or a little convex; asci linear, eurved; sporidia uniseriate, ovate, uniseptate, hyaline.—*Sphæria immunda, Fckl. exs. no.* 843. *Sym. Myc. p.* 108, *t.* 3. *f.* 10 *a. b.*

On the under surface of oak leaves. Shere, Surrey. Dec. 1865. (Dr. E. Capron.)

Closely allied to *I. pustula*, but smaller, and differing in fructification. At present I have only seen it upon two leaves.

2804. Isothea saligna. *B.* "Sallow Isothea."

Uni-multiloenlar, convex, brown-black, subumbonate in the centre; asci cylindrical; sporidia filiform, simple.—*Berk. Outl. p.* 392. *Berk. exs. no.* 191. *Phoma salignum, Fr. S.M.* ii. *p.* 546. *Fries exs. no.* 283. *Eng. Fl.* v. *p.* 283. *Sph. salicina, Sow. t.* 372, *f.* 1. *Mong. exs. no.* 268. *Linospora capreæ, Fckl. Sym. Myc. p.* 124. *Fckl. exs. no.* 879.

On fallen sallow leaves. Winter and Spring.

Gen. 366. **DICHÆNA,** Fr.

Peritheeia subcarbonaceous, elliptic, closed, bursting by a longitu inal fissure; nucleus and asci diffluent.

(*Fig.* 406.)

Fig. 406.

2805. Dichæna strobilina. *Fr.* "Fir-cone Dichæna."

Pycnidia.—Peritheeia gregarious, irregular; stylospores almond-shaped, hyaline; endochrome bipartite.—*Hendersonia strobilina, Curr. Linn. Trans.* xxii. *p.* 329. *Cooke. exs. no.* 341.

Ascophore.—Gregarious, erumpent; peritheeia rather irregular, rounded at first, soft, dirty-brown, then black, opening by a longitudinal fissure; sporidia fusiform, slightly curved, triseptate, sometimes each cell nucleate, hyaline.—*Fr. S.V.S. p.* 403. *Sph. strobilina, Fr. S.M.* ii. *p.* 495. *Fries. exs. no.* 318. *Eng. Fl.* v. *p.* 271. *Fckl. exs. no.* 790.

On fir cones.

The stylosporous condition is far more common than the ascigerous state, found by Dr. Capron at Shere. Sporidia (·0004-·0005 in.) ·01-·0127 m.m. (*Fig.* 406.)

Dichæna rugosa, Fr. I think should be included with Lichens; Rabenhorst divides it into two species under the names of *Psilospora faginea* on beech, and *Psilospora quercus* on oak.

Gen. **367.** **CAPNODIUM,** Mont.

Fig. 407.

Parasitic. Mycelium creeping, black; perithecia elongated, often branched, composed of confluent threads, with the tips often free at the apex. (*Fig.* 407.)

* Peridia more or less branched.

2806. Capnodium elongatum. *B. & Desm.* "Elongated Capnodium."

Setose. Peridia elongated, acuminate, generally simple, orifice mostly fimbriated; sporidia 2-3 septate, articulations at length constricted, and divided longitudinally.—*Berk. & Desm. Journ. Hort. Soc.* iv. *p.* 251, *f.* 5. *Curtis N.A. exs. no.* 1634. *B. & Br. Ann. N.H. no.* 900.

On spurs of living pear trees. Cornwall. [S. Carolina.]

Forming a scattered setose black stratum; mycelium moniliform. Several species of this genus are found in the United States. (*Fig.* 407.)

** Peridia simple, subulate (*Microxiphium*, Harv.)

2807. Capnodium Footii. *Berk. & Desm.* "Subulate Capnodium."

Forming little suborbicular setulose patches; mycelium subgelatinous, hyaline, when old moniliform; peridia dark, setiform; outer coat hyaline, threads at first cylindrical, at length moniliform; asci and sporidia unknown.—*Journ. Hort. Soc.* iv. *p.* 254, *f.* 10. *Fumago fagi, Pers. M.E.* i. *p.* 10. *Microxiphium Footii, Harv. MSS.*

On leaves of evergreens, deciduous trees, as the beech, and on herbaceous plants, as *Mercurialis perennis*. Common.

Often accompanied on the leaves of evergreens by *Strigula Babingtonii*.

*** Peridia subglobose.

2808. Capnodium sphæricum. *Cooke.* "Veronica Capnodium."

Pycnidia.—Seated on a myeelinm of radiating, branched, black threads, hemispherical, minute, rupturing irregularly in laciniæ; stylospores oblong, uniseptate, hyaline.—*Asteroma veronicæ, Desm. Berk. exs. no.* 193.

Ascophore.—Aggregated or scattered, subglobose, irregular, striate, small; mouth fringed; asci globose, eontaining eight uniseptate, coloured sporidia.—*Dothidea veronicæ, Lib. exs. no.* 173.

On leaves of *Veronica.* Shere. (Dr. Capron.)

This is not a good *Capnodium*, but it certainly does not seem to be a *Dothidea*. Madame Libert describes the globose asci, which are absent in the *Asteroma* of Desmazieres. Asci are certainly present in the mature plant. as stylospores are in the early, or pycnidia, stage which corresponds to the *Asteroma*.

Gen. **368. BLOXAMIA,** B. & Br.

Peridium persistent below, very delicate above, evanescent, at length exeipuliform; sporidia quadrate, generated in closely packed tubes.—*B. & Br. Ann. N.H.* 1854, *p.* 468.

This is a curious and anomalous genus, which it is difficult to place. On this account it had almost been forgotten, and, at the last moment, is inserted here.

2809. Bloxamia truncata. *B. & Br.* "Truncate Bloxamia."

Peritheeia punctiform, often slightly elongated, depressed, with vertical sides, firmer below and persistent, extremely delicate, white and evaneseent above. Hymenium eonsisting of closely packed tubes, which produee a row of sub-quadrate sporidia, ·0001 in. wide ·000125 in. long.—*B. & Br. Ann. N.H.* 1854, *t.* xvi. *f.* 17. *Cooke. exs. ined.*

On dead elm. Feb.—Mar. Batheaston.

ERRATA.

PAGE.			
7	No.	4	add "*A. virosus. Gonn. & Rabh. t.* 9, *f.* 1. *A. solitarius. Gonn. & Rabh. t.* 11, *f.* 2."
7	No.	6	add "*A. citrinus. Gonn. & Rabh.* i. *t.* 4."
8	No.	7	add "*Gonn. & Rabh.* i. *t.* 10, *f.* 2, *var.*"
8	No.	8	the fig. "*Gonn. & Rabh.* i. *t.* 8, *f.* 1," very doubtful.
9	No.	9	the fig. cited "*Gonn. & Rabh.* i. *t.* 1," is *A. spissus.* no. 12.
9	No.	10	the fig. cited "*Gonn. & Rabh.* i. *t.* 7, *f.* 3," is *A. spissus.* no. 12.
27	No.	58	dele "*Sow. t.* 281."
57	No.	148	dele "*Sow. t.* 206."
60	No.	157	for "*Sow. t.* 206" read "*Sow. t.* 205."
78	No.	214	dele "*Sow. t.* 210."
140	No.	395	for "*Sow. t.* 261" read "*Sow. t.* 264."
144	No.	405	for "*Sow. t.* 225" read "*Sow. t.* 285."
149	No.	419	for "*Sow. t.* 240, *f.* 1-3" read "*Sow. t.* 248, *f.* 1-3.
194	No.	547	for "*Sow. t.* 98" read "*Sow. t.* 56."
204	No.	578	dele "*Sow. t.* 106."
212	No.	599	for "*Sow. t.* 204" read "*Sow. t.* 104."
247	No.	696	to "*Sow. t.* 182" add "*lower figs.*"
264	No.	740	for "*Sow. t.* 190" read "*Sow. t.* 290."
273	No.	771	add "*spores white.*"
275	No.	778	add "*spores white.*"
275	No.	778	for "*Sow. t.* 182" read "*Sow. t.* 132."
278	No.	790	for "*Sow. t.* 190" read "*Sow. t.* 196."
289	No.	831	dele "*Sow. t.* 346."
329	No.	956	for "*Solenia candida,*" read "*Solenia fasciculata. Pers. Myc. Eur. t.* 12. *f.* 8-9."—See *Ann. Nat. Hist.* for June, 1871, pp. 429, whence it appears that the specimens found by Mr. Broome were referred to *Solenia candida* in error. Other new species are described in the "Annals" quoted, but too late to be included in this work.

PAGE.
636 insert—

Gen. **271*.** **HELICOSTYLUM,** Corda.

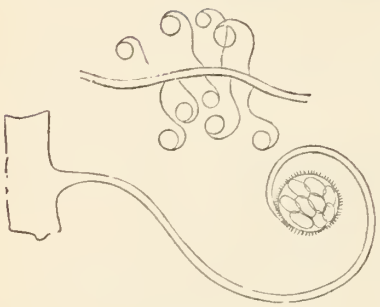


Fig. 408.

Hyphasma decumbent, branched, continuous. Stipes erect, spirally incurved, simple, continuous, then deciduous. Sporangia acrogenous, membranaceous, fixed to the stem, then deciduous, bursting irregularly. Sporidia irregularly conglobate, continuous; epispore simple; nucleus firm, with oleaginous granules.—*Corda. Ic.* v. *p.* 55. (*Fig.* 408.)

1900a. **Helicostylum elegans.** *Corda.* "Elegant Helicostylum."

Tufts minute, lax, white; hyphasma branched, here and there verrucose, white; stem short, white; sporangia globose, rough, yellowish-white; sporidia ovate, naviculæform, whitish.—*Corda. Ic.* v. *f.* 28.

On dead woodlice. Budleigh Salterton (Dr. Carter).

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